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ABSTRACT

Two studies combining teacher questionnaires, classroom observation, and pupil interviews were conducted to contrast formal and informal teaching practices in open plan and conventional classrooms. Study I sampled 12 teachers of classes including second year junior pupils (8-9 years of age); Study II sampled 30 teachers, including 13 with mixed teaching styles. Instruments were chosen (or designed and piloted) to look at grouping patterns and organization within the classroom; organization and evaluation of the curriculum; patterns of movement and language in the classroom; and teaching styles and practices. Results indicated that formal teachers used class teaching significantly more than informal teachers; that there was a significantly greater proportion of teacher talk in the formal class; and that movement at pupils' discretion was not permitted except for queuing for teacher attention. No framework for pupil choice was provided. Small groups were used occasionally as an organizational device, but did not include pupil planning. Informal teachers structured a network of activities, providing significantly more simultaneously occurring activities and opportunities for pupil choice, including small group work involving pupil planning. There was significantly more movement at the pupils' discretion. Pupil talk was more valued than in traditional classrooms; more than 80 percent of the language to which the pupil was expected to attend was from peers. Appendices include the instruments used in the studies. (Author/SB)

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PERSPECTIVES ON PRIMARY SCHOOL PRACTICE:
A Study of Formal, Mixed, and Informal Approaches in Open-Plan and Conventional Rooms

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A thesis submitted for the degree of Doctor of Philosophy
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ABSTRACT

Two studies combining teacher questionnaire, classroom observation, and pupil interviews were carried out contrasting formal and informal teaching practices in open-plan and conventional rooms. Study One sampled 12 teachers of classes including second year junior pupils; Study Two sampled 30 teachers, including 13 with 'mixed' teaching styles.

Instruments were chosen or designed and piloted to look at grouping patterns, curriculum organization and design, movement and language.

Teacher attitudes were more discriminative than use of open-plan or conventional facilities. Formal teachers used class teaching significantly more than informal teachers. There was also a significantly greater proportion of teacher talk in the formal classes; pupils were generally expected to be quiet. Movement at pupils' discretion was not permitted except for queuing for teacher attention. Formal teachers were usually at the front of the room or at their desk. No framework for pupil choice was provided. Small groups were used occasionally as an organizational device, but did not include pupil planning.

Informal teachers structured a complex network of activities, providing significantly more simultaneously occurring activities and opportunities for pupil choice, including small group work involving pupil planning. There was significantly more movement at the pupils' discretion. Pupil talk was highly valued; over 80 percent of the language to which the pupil was expected to attend was peer interaction.

Morning work was dominated by the 3Rs, afternoon by Art and Topic Work.

Open-plan rooms led to significantly more small group work, pupil talk, and simultaneous activities, though formal teachers reacted by setting a single task for the entire class.

The use of various groupings and the provision of a framework for pupil choice successfully discriminated among teaching styles and seem concrete, intuitively sensible, and manipulable variables useful in both research and practical contexts.

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CHAPTER ONE

INFORMAL EDUCATION: RHETORIC AND RESEARCH

> "We conjugate our verb as 'I am liberal; thou art permissive; he has no standards'." (Sharp, 1973, p. 90)

SECTION I. ADVOCATES: THE POPULAR LITERATURE

A. Introduction

'Informal education'[1] is the umbrella term for the somewhat parallel but far from identical practices that have developed and are developing in opposition to the traditional, academically focussed curriculum. This has been an international trend, though one whose origins lie in the work of teachers and schools independently evidencing dissatisfaction with an educational atmosphere they have felt to be dehumanized and irrelevant. To oversimplify, the positions polarize between the traditional school designed to guide its pupils to a mastery of the scholarly disciplines and an appreciation of culture, and the informal school that encourages its pupils to interpret and participate in the diverse and changing world around them. The traditional school is well-established. Most of us have attended them. The informal school is far from established. Many adults have never been in one. In place of thirty pupils sitting in straight rows (Adams and Biddle, 1970) engaged in question-answer-feedback sequences with the teacher (Bellack et al., 1966), the informal educator posits a model which emphasizes the dignity and judgment of the individual pupil. Those who advocate informal education hope to initiate a new vision of the classroom. So far that vision is hazy.

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[1] Many American authors use the appealing term 'open education' to refer to what we shall call 'informal education'. For the questions we consider, using the word 'open' is likely to confuse methods and facilities. Throughout this study we will use 'formal' and 'informal' to refer to teaching practices. 'Open-plan' and 'conventional' will refer to the spaces within which these practices occur.

Bussis and Chittenden (1970) put the problem succinctly:

> ...there is no single document to which one can turn to discover what [informal] education "really is" (p. 14).

The terms themselves are often confusing. The reader can usually assume that 'open-space schools' refers primarily to the building design, but 'open plan', 'open classrooms', and 'open education' are more ambiguous. In an interview with one Head Teacher, Corrie (1974) was told, "open-plan only describes the building. It doesn't describe the teaching that's taking place inside it" (p. 13). Yet even within the area of building description the reader may easily become confused. Architects use the term 'open plan' to label a design that "provides an area or series of areas without any interior walls" (Sargent, 1964, p. 223) in contrast to the 'loft plan' which is a "structure with interior partitions that can be taken down and reassembled to alter the size and shape and grouping of spaces" (p. 224) and also in contrast to the design labelled 'planned variability' which is an approach "which attempts to build into the structure itself the basic spaces of different sizes and types" (p. 229). Most parents and teachers would refer to all three of these building designs as 'open-plan'.

For those attempting an informal education in open-plan rooms, not only the terminology but also the programmes themselves vary, as a brief look at the claims of the proponents will make clear. A questionnaire sent to parents of pupils in open-plan schools in Saskatoon (Kindrachuk, 1970) suggests that the key features of the programme in open-plan informally-oriented schools are "the concepts of individualized instruction and continuous progress" (p. 13). Berson (1971) emphasizes family grouping, an integrated day, and an integrated curriculum. Open-plan architecture and team teaching are considered the significant elements by Brunetti et al. (1972). Barth and Rathbone (1969) provide a larger catalogue of components, emphasizing programme rather than facilities: "What is open education? Some of the phrases used to describe the notion include 'free day', 'integrated day', 'integrated curriculum', 'informal classroom', 'developmental classroom', 'Leicestershire model'." The Cumberland Education Committee (1973) would differ with at least some of the criteria listed above, most notably with "integrated day" and "integrated curriculum": "Not all schools in an Open Plan situation have an integrated day" (p. 1). "All members agreed that there should be a definite Scheme of Work for Mathematics throughout the entire school" (p. 5).

B. The Claims for Informal Education

Given this considerable interest in informal education, in what ways it is reckoned superior to the traditional approach to education? These will be considered below in separate sections on the dignity of the individual, discovery learning, integration, flexible grouping, choice, and enjoyment.

1. The Dignity of the Individual

Most educators would agree that one of the prime concerns of informal education is to foster the dignity and uniqueness of the individual (Plowden, 1967, p. 25; Featherstone, 1967c, p. 17; Moorhouse, 1970, p. 4). The goal for the pupil is to help him develop a realization both of his own personal worth and of the worth of each individual. For the teacher it means a minimization of class teaching in favour of group learning and individualized instruction, and an adoption of the various practices outlined below. Instead of being a coercive authority the teacher becomes an active partner planning for and encouraging pupils to progress along different routes toward personally appropriate goals.

2. Discovery Learning

Discovery learning, with its emphasis on the learner's participation in forming the questions and purposes which direct his activities (Dewey, 1938, p. 67), is the most frequently recommended procedure to achieve this individualized approach because it is believed to be child-centred and to maximize curiosity and originality (Holt, 1964, especially pp. 119 and 175; Wilson, Stuckey, and Langevin, 1972, p. 115). Blackie (1967) puts it concisely:

> The aim of all this exploration of the world in primary schools is to use the natural curiosity of children to help them to discover how full of interest the world is and to begin to learn how to look at it, what questions to ask about it, how and where to find the answers. This is what being educated is and a child so educated need never be bored or have a dull moment. That is the tremendous objective which the modern primary school has set up (p. 105).

Part of the reason advocates claim the child is never bored, never has a dull moment is that the child is motivated intrinsically; instead of reading pages 13 to 22 as assigned by the teacher, he is searching for an answer to his own question. He is no longer a passive recipient of knowledge; he is an inquiring, initiating learner.

3. Integration

Informality can lead to three types of integration: integration of the school day, integration of subject matter, and integration of experiences.

From the practical viewpoint, the integration of the school day makes it easier to share scarce resources and easier for the teacher to arrange time with the individual pupil. From the child's viewpoint, the integrated day means that instead of following the routine cycle of bells, the day can reflect his own natural rhythms (Brown and Precious, 1968). Some children may arrive at school keen to continue a project started yesterday with classmates; others may prefer a quiet read in the library corner; an exciting incident on the way to school may spur still others to begin the day writing or painting. The integrated day makes it possible for each of these children to work at his own speed in his own chosen way.

Integrating the disciplines gives a wholeness to the learning process that informal educators claim is lacking in more compartmentalized curricula (Rogers, 1969, p. 71). The teacher guides the child to diverse sources so that the answers he formulates will acknowledge diverse facets of his questions. Kallet (1965) comments on the children's

> ...apparent realization (conscious or not) of the futility and danger of drawing artificial boundaries in the realm of their experience of the world. There is no clear demarcation between the child's exploration of his surroundings and the gradual process of uncovering his inner world and discovering how it is related to, and how it is independent of, the world outside (p. 73).

Closely intertwined with the integration of disciplines is the balancing or integrating of experiences.

> We teachers are more concerned with a balance of experiences--literary, scientific, creative, aesthetic, practical, and spiritual--than with subjects, and more with the wholeness and harmony of growth--physical, intellectual, social, and emotional--than with instruction and academic learning (Moorhouse, 1970, p. 14).

The informal educator would not limit experience to the few behaviours usually evidenced in the stereotype traditional class setting: listening, responding, reading, writing, computing, and occasionally drawing or painting. He would instead provide the encouragement, the resources, and the context for a wide range of experiences. He would, for example, encourage the pupils to consider spontaneous talk a natural adjunct to learning, to consider inquiry and initiation a natural pupil occupation, and to consider failure and disagreement more of a challenge than a termination. Resources available to pupils would include, for example, a wide range of audio-visual aids and a copious assortment of creative and manipulative materials. The context he would build requires a more detailed explication than a few examples can provide; its key component is flexible grouping.

4. Flexible Grouping

According to Allen (1972), when asked the advantages of open-plan rooms, 'flexibility of grouping' came within the top two considerations for both principals and teachers in his British Columbian sample (p. 47).

This flexibility of grouping has both administrative implications and practical applications. Administratively, the open-plan, informal school is unstreamed and practises family or vertical grouping (Ridgway and Lawton, 1965). In Malmo, Sweden the heterogeneous principle extends to the integration of educationally handicapped pupils in normal schools (Rodhe, 1972, p. 95). Advocates claim that these policies encourage the child to associate with a wider range of companions and workmates, and hence assist him in forming a variety of relationships that will make his school life richer and will, hopefully, prevent the prejudice that denies the dignity of the individual. Practical applications of flexible grouping include planning experiences for pupils as individuals, as members of small groups, as a class unit, and in combined classes. Team teaching facilitates flexible grouping (Shaplin and Olds, 1964) though the most useful format is a topic of debate. Some argue that timetabled team teaching assures a balance of activities for each pupil; others argue that timetables destroy flexibility and hence that informal arrangements between teachers are preferable. At its best team teaching allows the teacher to develop his strengths and gives the pupil opportunities for interaction with more adults.

Though the composition of administrative groups such as "classes" is as heterogeneous as possible, learning groups in informal classrooms are frequently selected by the pupils themselves:

> Children group themselves in these classrooms very much as they do in a neighborhood or on a playground--on the basis of common interests, comparable skills, and personal compatibility. Teachers personalize the educational program accordingly (Berson, 1971, p. 13).

5. Choice

For the pupil the change from the traditional to the informal classroom can be summarized by the word 'choice'. Few schools allow totally free choice to all pupils all of the time, but the informal school substantially changes the amount and the quality of the choice available to the pupil. The integrated day allows him to select the sequence and pace of his activities; discovery learning allows him to select the questions he would like to explore; the integrated curriculum allows him to seek evidence from various disciplines; the integration of experiences encourages him to select the materials he will want and the mediums he will use to express himself; flexible grouping allows him to select his working companions and perhaps, with team teaching, even to choose which teacher to consult.

When the pupil is making so many of the decisions it is hardly surprising that carefully structured informal classrooms are considered happy environments.

6. Enjoyment

In view of the compulsory nature of education, one of the greatest advantages claimed for the informal classroom is that it leads to greater enjoyment of school and of learning (Barth, 1970). In the words of a Leicestershire Head Teacher whose Victorian building has been 'opened':

> We shall measure our success by the increase in interest our children have in the world around them, by their happy and easy association with each other and with us, and by their standards of what is good (Stanley and Stanley, 1970, p. 58).

Featherstone (1967b) helps explain the association between enjoyment and learning, using mathematics as the example:

> By giving children an opportunity to explore and experiment--play if you will--and by putting teachers in a position where they can watch children and talk to them about what puzzles or intrigues them, good British primary schools are producing classes where mathematics is a pleasure, and where, each year, there are fewer and fewer mathematical illiterates (p. 20).

C. Practice Without Theory

Though some advocates claim that informal education is "based on a body of new theory and research on how children do and don't learn" guided primarily by the work of Piaget (Gross and Gross, 1970, p. 71), others suggest that it is the fruit of fifty years of evolution of classroom practice in British primary schools (Barth and Rathbone, 1969; Rathbone, 1972) led by the Infant Schools (Mason, 1970). Hawkins (1969) explains that "those involved have been too busy with the main task to commit much energy to the discipline of educational theory" (p. 4), but suggests that now there is enough experience available to make a fresh theoretical formulation necessary and rewarding.

Cremin (1961) gives a comprehensive account of progressivism in American education, suggesting that practice drew on several different bodies of theory and had several lines of development, which far from presenting a coherent framework, were often contradictory. Informal, or 'open' education may well show similar strands of theory, but a few enthusiastic claims to the contrary, at this point there is no articulated body of theory to explain and confirm the value of informal education. Without the perspective and coherence a theoretical base would provide, the attempts to implement an 'informal classroom' have naturally been varied. Consequently, much of the literature on informal education takes the form of descriptive or anecdotal accounts by enthusiasts (e.g., Marshall, 1963; Richardson, 1964; Dennison, 1969; Gross and Gross, 1969; Kohl, 1969; Featherstone, 1971; Murrow and Murrow, 1971; Weber, 1971; Hubbard, 1972; Sharp, 1973). Some of the most useful of these experiential accounts have appeared as anthologies in which each chapter has been written by a specialist focussing on specific issues (Mason, 1970; Rogers, 1970; I/D/E/A/, 1971; Rathbone, 1971; Rogers and Church, 1975; Spodek and Walberg, 1975). Even these more authoritative accounts, however, lack the unity of a cohesive philosophical argument or the solid evidence of a carefully conceived piece of research.

D. The Queries about Informal Education

We have then two models for the classroom: one the traditional, academically-focussed model and the other the informal, experientially-based model. It seems reasonable to ask four practical questions at this point.

First, what does the traditional model value that may be neglected under the informal model? The traditional approach is devoted to the development of the cognitive abilities of its pupils and to the transmission of what is generally referred to as our 'cultural heritage'. Since these are not the primary values of the informal approach, how do they fare? At the most obvious level, they lose time. Time which the traditional environment devotes to the academic subjects will in the informal environment be consumed by expressive activities. At a

The real secret of any method is the teacher's
devotion and enthusiasm... . (Marshall, 1963, p. 181)

more basic level, the traditional values lose central status. The recognized disciplines become less recognizable as Topic and Language. The value of the learned product is replaced by the value of the learning process. If the informal environment spends less time on the basics and values them less, can it possibly accomplish the same standard of achievement as the traditional classroom has?

Setting aside the question of whether the informal classroom accomplishes what the traditional one accomplishes, our second question is: Do the claimed benefits of the informal environment come to fruition? Advocates assert that the informal classroom fosters creativity and inquiry and produces children who enjoy school and learning. Does it?

Third, how do the teachers feel about the informal environment? The traditional model is the one they have experienced as pupils and the one for which most of them are trained; it has the advantage of familiarity and it is considered respectable. In juxtaposition, the informal model has the advantage of novelty and it is considered fashionable. There is no doubt that coping with mixed ages and abilities is taxing. It may have appeal in print, but will the classroom teacher judge it worth the effort? The teacher will have to evaluate not only her own comfort with the approach, but also the benefits and deficits for the pupils.

And fourth, what does actually occur in an informal environment? The proponents of informal education ask for a radical departure from the traditional model. Do they in fact obtain new models of interaction, new relationships, new pupil values and attainments or in fact, is the 'radical' only rhetorical? Will the classroom itself evidence only a shift in emphasis and not a fundamental change?

SECTION II. PROVING YOUR POINT: PREVIOUS RESEARCH

The four questions posed by the anecdotal literature provide a useful framework for a critical review of the research on informal and open-plan education.[1] In spite of the prominent anecdotal literature, there have been few research efforts. And unfortunately, of those few, most suffer from major flaws in conception, design, or analysis. We illuminate the weak points in an attempt to remind both the reader and the intending investigator that so far our knowledge is scant. The literature is distinguished more by the differences not found than by discriminations successfully made. Hopefully we can learn from the errors of others; so far we can cite only 'suggestive indications', not conclusive evidence.

A. Academic Achievement

An early approach to the evaluation of informal schools concentrated on the 'product'--what children had learned in the traditional academic areas. This was in direct response to the anxiety of parents and some teachers that in experimenting with less formal approaches they were jeopardizing the academic attainment of their children for a dubious gain in such nebulous skills as decision-making and problem-solving. One of the earliest such product evaluations (Lovell, 1963) involved a two-part study assessing the reading attainment of over 2,500 junior school pupils in pairs of schools matched for parents' social class and rated

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[1] In much of the research reported, the investigators appear to assume that informal education and open-plan buildings are synonymous. We do not support that view, but will report their studies in the appropriate sections alerting the reader by continued use of 'informal' to refer to practices and 'open-plan' to refer to building type.

'informal' or 'formal' by the Chief Education Officer with the assistance of the Senior Educational Psychologist and the Local Authority Inspectorate. Lovell concluded:

> ...overall there is no evidence whatever of any deterioration of reading standards in informal junior schools. Although there is no evidence that these schools bring superior standards in reading, they may well benefit their pupils in other ways (p. 76).

Gardner (1966) directed the administration over a twelve year period of an extensive and intensive battery of tests to primary school pupils in judged-good traditional and experimental (i.e. informal) schools. Pupils aged 6+ to 7+ were tested for the Infant School study and pupils aged 10+ to 11+ were tested for the Junior School study. The battery of tests included concentration, neatness in work, ingenuity, social attitudes towards other children, interests, and free drawing as well as the more standard English, Reading, Handwriting, Arithmetic, and general information. Ignoring the clear difficulty of maintaining a coherent research effort over a 12-year period with changing personnel (while acknowledging the benefit the framework must surely have been to her students), the results were inconclusive. "It should, however, be pointed out that it was in only four out of the 264 tests given at the Junior School stage that such a very high degree of significance was found and it did not occur at all at the Infant School stage of the study" (p. 40). The four tests which were significant (free drawing, ingenuity, composition, and English Paper 2) favoured the informal schools.

Flanders (1964), who is well-known for developing interaction analysis, found in a study of 31 social studies and mathematics classes containing 12- and 13-year-old pupils that teachers he referred to as 'indirect' on the basis of the verbal interaction patterns in the classroom produced significantly higher achievement results in those areas. Though the Flanders Interaction Analysis Schedule has been widely used and reported on, there has been some question as to whether the classes investigated represented a 'formal' versus 'informal' description or whether distinctions were being made within 'formal' teaching practices (Dunkin and Biddle, 1974, pp. 112-113; Bennett, 1976, p. 17).

As part of an evaluation of the two open-plan schools in Saskatoon (Kindrachuk, 1970), the cognitive achievement of the pupils in the open-plan schools was compared with the achievement of the pupils in the rest of the Saskatoon system. The Canadian Test of Basic Skills was administered to pupils in grades 4 through 8. It is difficult to interpret the results since statistical tests were not carried out and since the mean I.Q. score (Lorge Thorndike Intelligence Tests) for the pupils in the open-plan schools was consistently lower than for the pupils in other schools in the system. However, the mean gains in one year reported for grades 5 through 8 all showed the open-plan schools lagging; whether the lag is significant (statistically or practically) is difficult to judge from the data provided.

While most of the studies comparing open-plan and traditional schools had found and would find no significant difference in the performance of the pupils, one study (Sackett, 1971) compared sixth grade pupils in an American open-plan school, a conventional school, and a departmentalized school using the Lorge Thorndike Intelligence Test for I.Q., the Iowa Tests of Basic Skills for achievement (both administered by the teacher), and Coopersmith's Self-Esteem Inventory (administered by Sackett) and reported that the open-plan school was significantly lower in achievement than either the conventional or the departmentalized schools and further, that the self-concept mean in the open-plan school was significantly lower than in either the conventional or the departmentalized school.

Allen (1974) like Sackett (1971) was interested in a broader profile of the pupil than the achievement test alone could give. He compared pupil achievement, attitude, and self-esteem in open-plan and conventional classrooms. He administered the subtests for Listening, Mathematics, and Reading from the Cooperative Primary Tests (Form 23B), the subtests Teacher, School Subjects, Social Structure and Climate, Peer, and General from the School Sentiment Index (Primary Level 1970), and the Davidson and Greenwood Self-Appraisal Scale to a sample of 437 grade 3 pupils from 14 schools. The subtests Word Meaning, Paragraph Meaning, and Arithmetic Computation from the Stanford Achievement Tests (Intermediate II Battery, Form Y), the subtests Teacher, Learning, Social Structure and Climate, Peer, and General from the School Sentiment Index, and again the self-appraisal scale were administered to 355 grade 5 pupils from 15 schools. Unfortunately his analysis was limited to a series of one-way analyses of variance contrasting open-plan and conventional classrooms within each grade level separately. This approach revealed no significant differences between grade 3 pupils in open-plan and conventional classrooms on the achievement tests or the self-appraisal scale. The grade 3 pupils of open-plan schools had more favourable attitudes toward their teachers than did pupils in conventional schools. At the grade 5 level, the open-plan pupils did significantly better on two of the three achievement tests (Word Meaning and Paragraph Meaning), but had less favourable attitudes toward learning. Other comparisons at the grade 5 level were not significant.

Neither the proponents nor the opponents of informal education or open-plan schools can claim comfort from the research literature on academic comparisons:

No significant difference in reading attainment between formal and informal Junior School pupils (Lovell, 1963);

No significant differences shown in a host of tests administered to Infant and Junior pupils in formal and informal classes over a twelve year period by Gardner (1966);

A possible lag in the achievement of the pupils in grades 4 to 8 in the two Saskatoon open-plan schools (Kindrachuk, 1970);

Significantly lower achievement in the open-plan school in Sackett's (1971) study;

No significant difference in the achievement scores of third grade pupils, but open-plan pupils significantly better on two of three achievement tests administered at the fifth grade level (Allen, 1974).

In a more recent study finding greater pupil achievement in formal classes, Bennett (1976) suggests that the issue is not formality versus informality, but rather elements within the classroom situation such as curriculum organization and time spent on content areas that produces superior learning results. (See "Multiple Perspectives," below.)

B. Other Pupil Outcomes

In an attempt to assess progress in informal schools on their own terms, rather than solely in the academic terms that the traditional school espouses, Wilson, Stuckey, and Langevin (1972) tested 11- and 12-year-olds in two informal and two traditional Canadian schools. (It is difficult to consider their sample representative since one of the informal schools was a lab school housed in a traditional building and the other informal school in the sample was new at the time of testing.) The investigators used the semantic differential to assess pupil attitudes toward school, teacher, self, learning, and "school last year", the Torrance Minnesota Tests of Creativity to assess productive thinking, and two questionnaires to assess curiosity. The results showed that "in all cases, the attitude of the [informal] pupils was more positive toward school than the attitude of the controls" (p. 117). However, there was no significant difference in curiosity among the groups, and somewhat surprisingly, students from the new informal school ranked lowest of all on the creativity measures. The authors add that further examination of the data indicated that creativity tended to increase in proportion to the length of time spent in an informal setting. Once again, the data suggest that the informal school matches the traditional school in product, but there is no outstanding evidence of its superiority.

Haddon and Lytton (1968) contrasted informal, progressive teaching with more formal, subject-centred teaching in a study of 211 eleven- to twelve-year-olds matched for Verbal Reasoning Quotients and socio-economic background. They found that pupils from the informal schools were significantly superior in divergent thinking abilities. Reiterating that they were not comparing 'good' and 'bad' schools, "but good schools which operate with a somewhat different emphasis" Haddon and Lytton conclude, "the most striking difference lies in the degree of emphasis laid upon self-initiated learning" (p. 179). Hypothesizing that the effects of such different approaches to learning would still be measurable regardless of the type of secondary school attended, Haddon and Lytton (1971) traced and retested 151 of the original 211 pupils four years later. (The children were attending seven different schools: 1 boys' grammar school, 1 girls' grammar school, 1 mixed grammar, 1 comprehensive, and 3 secondary modern schools.) "Our main prediction that pupils who had experienced an informal as opposed to a formal primary school would be significantly superior [illegible] tests of DTA (Divergent Thinking Ability) at 15 years of age was convincingly supported" (p. 146).

Ramey and Piper (1974) analysed the responses of children in an informal and a traditional school to the Torrance Tests of Creative Thinking. Ten children were randomly selected from grades 1, 4, and 8 at each of the schools for a total sample of 60 children. Analysis of variance revealed significantly superior mean scores at each of the grade levels measured for the children from the informal school on each of the four subscales of figural creativity: fluency, flexibility, originality, and elaboration. Analysis of verbal fluency and flexibility, however, revealed that at each of the grade levels measured the children from the traditional classrooms produced superior mean scores. The difference between the schools on verbal originality was not significant.

As evidence of the changing role of the pupil in informal schools, Brunetti (1971) presents a table showing that a sample of 445 high school pupils with Independent Study in open-plan schools reported more self-direction and independence than 332 pupils with Independent Study in conventional classrooms who in turn reported more self-direction and independence than 329 pupils in conventional programmes in conventional rooms (p. 10). It is difficult to interpret the figures given, beyond relative magnitude; neither statistical data nor the form of the pupils' responses are reported. We also cannot be certain from this account that the three groups of "high school" pupils are similar in age or other demographic variables. Unfortunately, the same is true of other tables presented by Brunetti, but it may still be worth mentioning the interesting responses from pupils in three elementary schools. Over half of the pupils in an individualized programme in an open-plan school and in a conventional programme in conventional classrooms reported the 'class too noisy most of the time'; in contrast, less than a fifth of the pupils in a conventional programme in an open-plan school reported that their class was too noisy most of the time. The pattern was similar for 'distracted most of the time' (p. 13) The author suggests that two factors help explain the responses: first, the carpeted floors in the open buildings compared to the tile floors in the conventional school and "second, 'commons' areas in the open-plan school provided teachers with additional space to geographically separate possible noise generating activities while most activities in the conventional school were confined to each 900 square foot classroom" (p. 14).

Myers (1971) investigated the hypothesis that pupils in open area situations would perceive their teachers' roles and their own roles differently than pupils in conventional classes. To test this, he administered his Ideal Teacher Checklist composed of 66 teacher characteristics, which had been developed for earlier studies. Data are reported for 62 pupils from grades 3 through 7 in an open-plan school and for 271 pupils from grades 3 through 7 in conventional classrooms in a more traditional school.[1] Myers' data are inadequately and selectively presented, but it is of interest to note that the open-plan pupils rate the top three characteristics of the Ideal Teacher as 'Makes interesting assignments', 'Trusts his students', and 'Is eager to help when I need it' while pupils in conventional classrooms characterize their Ideal Teacher as 'Gives everyone a chance to express himself', 'Administers punishment fairly', and 'Thinks all of his pupils are important'. Myers claims that the open-plan pupils learn to want more autonomy and "to see also a need for certain kinds of control by their teachers" (p. 106).

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[1] The reader assumes that "...Grade 5 through..." (p. 103) is a printing error since the Ns on pages 103 and 105 are equal and the text claims "...in the third grade and above..." (p. 101). This is important however, since he states, "the age of a respondent has proved to be one of the most powerful factors in his reactions to the characteristics on the checklist" (p. 102). It is curious that the sample sizes from the two schools are so disparate, especially since the population Myers was particularly investigating is the smaller sample. The checklist had been in existence eight years (p. 101).

Assessing pupil outcomes that are of value to the informal educator may be a contradiction in terms. The informal educator thinks in terms of the learning process, not the final product. Product measurement has shown few differences between the 'progressive' and the 'traditional' styles of education. Process measurement has yet to be tried.

Pupils are the school's raison d'être, but to consider only the pupil would be to ignore the power structure of the school. Administrators, teachers, and parents each have authority over the child. Consequently, their attitudes can have a critical effect on the education the child receives or shares.

C. Educators' Attitudes

In the report already mentioned, Brunetti (1971) briefly outlines opinions drawn from superintendents and teachers in open-plan schools. Thirty superintendents who had initiated open-plan schools in American school districts identified four reasons for building these open-plan schools:

1. To better meet student needs through individualization of instruction.
2. To better use teacher talents and time through cooperative staff organization.
3. To allow for changes in organization and use of space over time.
4. To provide for an environment of change through experimentation and innovation (p. 4).

Brunetti claims that by combining these four points, we can see an emphasis on the changing roles of the pupil and of the teacher.

To explain the changing teacher role, Brunetti presents data from

110 teachers in open-plan classrooms and 120 teachers in conventional rooms showing that a higher percentage of those from open-plan rooms felt they had high interaction with colleagues on teaching, high informal evaluation among colleagues, high self-control of their work, and high job satisfaction (p. 19).

In a second report on the same data (Meyer, Cohen, Brunetti, Molnar, and Lueders-Salmon, 1971), virtually the same conclusions were reached.

The reader must be especially careful to remember the limitations of self-report questionnaire data: there may be discrepancies between attitude and practice. Kohl (1969) verbalizes what many teachers may have experienced: "My beliefs in a free, non-authoritarian classroom always ran ahead of my personal ability to teach in one" (p. 69). Thus the questionnaire data from the 230 teachers is a substantial beginning, but requires caution in the interpretation and generalization of results. This will become an even more crucial issue as investigators turn from the working relationships of teachers to the interaction of teachers and pupils.

An evaluation of two open-plan schools in Saskatoon was carried out during the year September 1968 to September 1969 (Kindrachuk, 1970). Teachers responded anonymously on a 5-point scale to a 23-item checklist and to "six questions concerning feelings, advantages, disadvantages, etc." (p. 30) in the fall and again in the spring. Data on the number of teachers and the characteristics of their responses are not presented; there is no evidence that statistical analyses were undertaken. Nevertheless, the authors claim that the responses indicated that open-plan teachers "increasingly agreed" that there was a tendency for pupils to be more interested in school, that students seemed to develop broader interests, that skills are not neglected, that there are greater opportunities for individualization (p. 30) and that a definite place remains for the formal lesson taught to an entire class (p. 31). They also felt that open space was hard on the teachers' nerves (p. 31), though that may be partially a reaction to the first year of operation.

Parents' attitudes to the school and their child's progress were also solicited by questionnaire. Summarizing the responses of the 156 parents who replied (we are not told what percentage this represents), Kindrachuk (1970) reports that more than half the parents felt their children were more interested in school than they had been before and about two-thirds of the parents thought their children were developing more outside interests stimulated by the school programme (thus supporting teachers' impressions). A "large majority" wanted their children to make choices from a variety of teacher-suggested activities.

Allen (1972) set out to "discover common practices in open area classrooms in British Columbia and to determine whether any of these were associated with teachers' perceptions of success" (p. 9). He sent questionnaires to superintendents, principals, individual teachers and teaching teams in a randomly selected fifty percent of the schools with open areas in the district and received relatively complete data (responses to superintendent, principal, teacher, and team questionnaires) for 186 teachers. To check the validity of questionnaire responses, half day observations and unstructured teacher interviews were also conducted with 27 teachers at eight elementary schools. Two limitations are evident in the sample. First, of the 62 open areas in the sample 22 had been in operation for less than one year (p. 13). Both teachers and pupils in these new schools were likely to be experiencing orientation problems that may be more a function of newness of situation than of open-plan schools per se. (This increase in the incidence of open-plan schools of approximately 35 percent during the year 1970-71 emphasizes, however, the importance of research into their effects.) The second limitation is that 42 percent of the teachers in the sample were not volunteers (p. 27) and significant differences were found between the responses of volunteers and non-volunteers on several questionnaire items.

In view of these two limitations, it is not surprising that the findings reflect a discrepancy between the ideals in the educational literature, and the reality of these teachers working in a changing educational environment. Two discrepancies are particularly pertinent. First, from the 27 teachers observed and interviewed, Allen reports that the "most frequently mentioned belief relating to student learning was a rather surprising one in view of recent trends towards integration of subject areas at all levels of schooling. It was that students learn best when subject matter is distinctly divided into curriculum areas such as social studies, language arts, science and mathematics" (p. 67). The second area of discrepancy relates to individualized and independent learning. While most teachers though that independent learning was preferable to teacher-dependent learning, they seemed to limit the independence to the subject areas they considered secondary in importance and/or to variation in sequence or pacing of set content. "There were very few exceptions to the notion that individualization should be delayed until basic language and number skills had been developed" (p. 67).

Allen's tables of the advantages and disadvantages of the open-plan rooms as seen by teachers and principals (pp. 47-48) indicate that both the teachers and the principals valued the opportunity for increased flexibility of grouping, for staff cooperation, and for individual attention. On the other hand, both teachers and principals were concerned that some children were distracted and that the noise level was higher in the open-plan classroom.

Two of Allen's conclusions from the questionnaire data are of special interest:

> Perceived increases in student and student-teacher interaction appear to be major factors in teachers' positive evaluation of their open areas.
>
> ...
>
> Time spent in medium-sized groups results in increased perception of noise as a problem and less favourable evaluations. There is a positive relationship between time spent in medium groups and years of teaching. (p. 64)

To investigate the relationship between attitudes and practices among Junior School teachers, Telford (1970) solicited data from a group of 147 teachers (53 male and 94 female; 23 rated progressive, 101 average, and 23 traditional) in a sample stratified for school size, economic status of catchment area, and geographic distribution within Durham County. Teacher attitude was measured by a 54-item Likert-type questionnaire; classroom practices were elicited in a 15 to 30 minute teacher interview. Such an interview is a questionable vehicle to use to assess teacher practices. Teacher comments are likely to be a mixture of what she actually does, what she would like to do, and perhaps also what she perceives the interviewer would like her to be doing. The investigator has no sure way of distinguishing these three strands in the interview situation. Hence the questionnaire and the interview are actually two techniques both of which will reveal the teacher's attitudes. Telford reports that "very little effect on attitude and practice was recorded for the variables of: class and school size; year group taught; age; sex; or status of the teacher within the school" (p. 223). He also concluded that teachers were "inconsistent in their classroom practice regarding progressive or traditional behaviour" (p. 203). His finding seems to echo Flanders' (1964, p. 233) comment that the teacher rated 'indirect' has the activities of the 'direct' teacher within her repertoire.

Reiterating a theme common to most observers of informal, open-plan classrooms, Allen (1972) stated,

> In all observations students appeared happy and were busily occupied with their tasks. There was no visible sign of stress on the part of the teachers who continued to function in a relaxed and efficient manner under the watchful eyes of the observers. The observers, all experienced non-open area teachers, were particularly impressed by what they described as a relaxed and informal but workmanlike atmosphere (p. 69).

Something was impressing visitors and teachers in informal environments; investigators would have to look in other directions to discover the discriminating differences.

D. Observed Behaviour

The results from testing and questioning had been less than inspiring, yet the favourable reports from those who had visited informal classrooms implied strongly that there were definite differences between the traditional and the informal school. Systematic observation was an obvious next step.

In early 1970, a research team composed of sixteen people, mainly elementary principals, conducted a direct study of the learning setting in four open-plan and three traditional elementary schools in York County, Ontario (Burnham, 1971). It is especially disappointing that this team made the basic mistake of confounding building and style effects. The three control schools claim goals for their pupils "essentially identifiable with those of open education" (p. 23). Though the goals of the open-plan schools are not explicitly stated, items tabled such as 'Pupil successfully initiates activity which reflects his personal interests' clearly reflect an effort to discriminate between formal and informal practices. Though nine members of the team "were trained in classroom observation techniques" (p. 23), the results are tabled in a yes/no format under the heading "Found in the majority of...open plan/control" schools with no further details provided. They report, however, that neither the majority of open-plan nor of traditional schools allowed pupils the opportunity to share in decisions that touch them closely though both types of schools gave the pupil the opportunity to display personal responsibility. Observers judged, however, that the pupils in the control schools did not make good use of this opportunity to display personal responsibility. In the majority of open-plan schools but not of control schools pupils successfully initiated activities reflecting their personal interests. Again, in the majority of open-plan schools but not of control schools, pupils raised pertinent questions; in neither type of school, however, did the observers believe that the pupils demonstrated that they had mastered the skills needed to discover their own answers.

Ellison, Gilbert, and Ratsoy (1969) with data from observation in an open-plan and a conventional school (grades 4 to 6) considered the teachers' utilization of time, and also verbal interaction using the Flanders system of interaction analysis. They found that teachers in the conventional school spent more time on organizational routine while teachers in the open-plan school spent more time observing other teachers, interacting with adults, and in moving from area to area. No differences were found between schools in time spent presenting information or time spent in instructional supervision "which writers on team approaches to instruction intimate should exist" (p. 19).

Their findings about the size of groups frequently used in open-plan and conventional schools are particularly interesting and foreshadow those of Gump (1974). Large group instruction accounted for 0.8 percent of the tallies recorded in the conventional school compared with 12.5 percent in the open-plan school; medium group instruction accounted for 84 percent in the conventional school compared with 75 percent in the open-plan school; small group activity accounted for 25 percent in the conventional school compared with 12.5 percent in the open-plan school (pp. 19-20). There were "no differences between the schools in the amount of individual attention given students" (p. 21).

In a study of two open design and two traditional schools (grades 1 and 2, 5 and 6), Gump (1974) examined 'environments' and pupil behaviour. He found that the use of minor adjacent sites (i.e. reading niches and seatwork spaces at the same base) did not differ among schools (p. 585) and that pupils were rarely given leadership opportunities in any of the schools (p. 589). Perhaps more interesting are the findings on group size which support those of Ellison, Gilbert, and Ratsoy (1969) above. "Ideally, the increased frequency of large combinations at the open school should enable an increase in small subgroups such as the reading group. ...No increase occurred; small groups were slightly less frequent in the open schools" (p. 588). If combining classes for large groups does not free a teacher for small groups, then it would seem there is a serious flaw in at least one of the rationalizations usually offered by its proponents.

Lueders-Salmon (1972) observed a sample of 22 collegial (as opposed to hierarchical) teams in open-plan schools and 11 teachers in conventional classrooms, finding that the open-plan classrooms were more active, as measured by the amount of movement not directed by the teacher and the proportion of time children spent in educational games, cooperative work and "doing" versus the proportion of time children spent in waiting, listening or passive, and the proportion of time children spent in large groups.

A prevailing problem in all research, but particularly in open-plan research, is the separation of the effects of different variables. As Lueders-Salmon notes, "since only teams were studied in the open-space structure it is not possible to distinguish the effects of open-space structure from the effects of teaming" (p. 63). In fairness, Lueders-Salmon was working within a framework at Stanford University where this confounding was rationalized:

> Our findings thus represent the combined effects of open-space arrangements and team-teaching organization. This research design was chosen as our starting point because it seems clear that the organization plan underlying the open-space school both requires for its effectiveness and is intended to enable cooperation among teachers" (Brunetti et al., 1972, p. 88).

It should also be noted that the Lueders-Salmon (1972) study has not successfully specified a single unit of analysis, relying instead on the teacher in the conventional classroom but the team in the open-plan environment.

In an interesting though very small scale study, Innes (1973) gathered two 10-minute specimen records on each of 15 pupils (drawn from 3 classes) by observing them once in an open setting (free choice environment) and once in a closed setting (specific assignment given). "Although none of the analyses of variance reached significance they revealed a strong tendency for there to be more variance between open and closed settings for the same children in the same classrooms than between different children in different classrooms" (p. 39).

The educational environments in elementary schools differing in programme openness and architectural type were examined by Fisher (1974) in a study of the Language Arts classes of 11-year-old pupils in 30 elementary schools in one southern Ontario district. He used a 29-item teacher questionnaire, Dimensions of Schooling (DISC), to quantify programme openness (i.e. informality), an 85-item pupil and teacher questionnaire, My Language Arts Class, to measure social climate, and five one-hour observations of teacher-pupil groups that yielded data on 15 teachers and 90 pupils (3 boys + 3 girls from each teacher's language arts class). A cautionary note before citing results reported: Fisher's sample includes 15 schools distributed over six cells representing open-plan and conventional schools rated low, medium, and high on programme openness: 7 of the 15 schools are categorized in the conventional/formal cell while no schools represent the conventional/informal cell. It is a puzzling research design. He reports, however, that pupils in open-plan settings had higher scores on 'unengaged' and 'in transit' and lower scores on 'watching and/or listening' to pupils (p. 12). There were no significant differences in the amount of paper and pencil seatwork. Pupils in open-plan settings used visual projectors, audio equipment, hand tools, construction materials, and games more and the blackboard, maps, and charts less than pupils in conventional settings. The social climate scales showed no significant differences on difficulty, democracy, or competition, but pupils' scores on diversity of activity were positively related and scores on formality were negatively related to informality. Pupils in open-plan settings had higher scores on diversity, pace, and friction.

The small-scale study utilizing few measurement techniques can be useful if the investigator's review of the literature yields the insight that makes it likely he can illuminate a problematic dimension of the previous efforts. In general, however, we are more likely to find significant answers to the complex questions facing educators if we adopt more complex investigating techniques: a combination of evidence from interview, questionnaire, testing, and observation provides a fuller and more accurate picture than any of them in isolation.

E. Multiple Perspectives

Though facile to suggest, a study combining evidence from various sources is not easy to implement. Attempting a multi-faceted approach, Kindrachuk (1970) used pupil, teacher, and parent questionnaires, the Canadian Test of Basic Skills, and the written logs of the principals of the two open-plan schools. Unfortunately, the life-span of the Open-Space Committee conducting the research was not long enough to permit appropriate analysis of the data. Pupil questionnaires arrived too late to be included in the main work, so they were tallied and placed in an appendix, but were not subject to statistical analysis or commentary. The teachers' responses to the 23-item checklist plus six questions are tabled under the headings "General Opinion" and "Opinion Change from Fall to Spring" without details of the total teacher population and response rate, and with no indication that statistical tests were carried out. The data from the 156 parent questionnaires are adequately though generally reported, but we have no idea what response rate the 156 questionnaires represent or how a two parent family was requested to complete the questionnaire(s). The data from the Canadian Test of Basic Skills are not interpretable, since no statistical analysis is reported; the mean gain over the course of one academic year is lower for the open-plan schools at grade levels 5 through 8, but so is the mean I.Q. The principals' logs, had they been fully reported, would have been of primary value in substantiating and illuminating the responses given and the results obtained by the other methods. A promising start but no conclusion.

Acknowledging both our bias and the fact that no research effort is without flaw, the SSRC Teaching Styles Project (Bennett, 1976) did produce a more useful portrait of life in classrooms of varying styles by gathering data from teacher questionnaires (871 schools), classroom observation by both the research team and L.E.A. advisors, pupil observation by the research team, content analysis of pupil essays, and pupil tests using both cognitive and affective measures in a pre-test/post-test design. And unlike the 12 year lag by Minuchin et al. (1969), the results were immediately forthcoming and readable. In this major, though controversial, piece of research two strands have been focal. First, to break the pattern of dichotomous teacher ratings, the research team developed a teacher questionnaire and administered it to a census sample of 871 schools and then used cluster analysis on the responses to obtain groups of teachers similar in practice. Twelve groups were initially delineated. Limited resources necessitated a smaller scale though more intensive effort from that point. The second part of the study included 37 teachers and their classes representing 7 of the clusters which had been selected to include the two most formal clusters, the two most informal, and 3 with mixed teaching styles. The academic achievement of the pupils in the upper junior classes was measured at the beginning and the end of the year. Using the 950 pupils rather than the 37 classes as the unit of analysis, statistically significant differences among styles were found favouring the formal teaching methods. This method of analysis has been challenged (Rogers and Barron, 1976). Bennett does not himself argue for a return to formal methods, but citing exceptional results in one informal classroom suggests "that careful and clear structuring of activities together with a curriculum which emphasises cognitive content are the keys to enhanced academic progress" (p. 160).

F. Informal Versus Traditional: N.S.D.?

After this considerable expenditure of resources, where are we?

There has been no major piece of research nor set of studies that conclusively demonstrates an advantage for either the 'traditional' approach or the 'informal' approach. There is nothing substantial to convince the uncommitted and certainly no evidence strong enough to convince the unbelieving.

Previous attempts have proven unsuccessful for three reasons. First, key variables have been carelessly defined; as has already been illustrated, the 'open' school may or may not adopt such practices as team teaching, an integrated day, an integrated curriculum, family grouping, discovery learning, or an individualised approach. (And even once enumerated, these elements themselves are variously defined.) Second, the research itself has been flawed in design, especially in sample selection, and in analysis. Third, most investigators have propagated extreme images of a 'traditional' and a 'progressive' classroom. It is naive to expect a solution to educational dilemmas that clearly labels the 'good' and the 'bad', yet this has been the form in which investigators have conceptualised the classroom in the past: Barr (1929) attempted to isolate the characteristics of 'good' and 'poor' Social Studies teachers; Anderson (1939) maintained the dichotomous thinking but changed the labels to 'integrative' and 'dominative'; Lewin, Lippitt, and White (1939) preferred the labels 'democratic' and 'autocratic'; describing classroom climate, Withall (1949) distinguished the 'learner-supportive' from the 'teacher self-supporting'; Cogan (1956) opted for 'inclusive' and 'preclusive' teachers;[1] while Flanders (1964) favoured 'indirect' and 'direct'; Bernstein (1968) legitimized 'open' and 'closed' schools; and finally moving into the common vernacular, Telford (1970) considered 'progressive' and 'traditional'.

Yet when it came down to actually finding the much-heralded 'progressive' teacher, investigators have been disappointed by their scarcity. Cluster analysis of questionnaires from 1,258 upper Junior School teachers revealed only 9 percent corresponding to the Plowden model that Blackie (1967) and Rogers (1970) had claimed was prevalent in 25 to 33 percent of British classes (Bennett and Jordan, 1975, p. 27).

These dichotomies have produced little progress either in our way of construing the classroom or in our practice within it.

SECTION III. A REFORMULATION: 'SITUATIONS'

A. Introduction

To point the way out of this long tradition of dichotomous images, Bennett and his colleagues (Bennet and Jordan, 1975; Bennett, 1976) developed a typology of teaching styles from a cluster analysis of 1,258 questionnaires completed by teachers of third and fourth year Junior School pupils. They found that most teachers reported adopting mixed strategies, though the more formal and informal styles were also represented in the sample. The characterization of teaching styles along a single dimension does not accurately reflect life in the classroom.

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[1] Cogan (1956) is sensitive to some aspects of the problem. He states that 'inclusive' and 'preclusive' are two separate variables, not halves of a single continuum, and that he is labelling them more neutrally than for example, "authoritarian, laisses faire, democratic, integrative, and dominative". He undercuts himself, however, by presenting affect-laden tables (pp. 78 and 80) tying 'preclusive' with such terms as 'dominative', 'aggressive', 'rejectant', 'self-centered', and 'hostile' and tying 'inclusive' with such terms as 'integrative', 'nurturant', 'friendly', 'trustful', and 'responsive'.

One of the major difficulties is that the previous research treats the classroom as the smallest unit of analysis when in fact this seems unfounded. It seems very likely that there are homogeneous activities across classrooms: one can immediately picture the entire class gathered for a story, the small group working on a project, the individual reading to the teacher. These activities may well occur in the classrooms of both the 'traditional' and the 'progressive' teacher, in classroom climates that are 'warm' and those that are 'hostile'. In that event, the characteristics of the activity may be as important as, or more important than, the characteristics of the teacher or the general classroom climate.

To the extent that such activities alter the social situation into which the child is placed, we can also assume they will have differing effects upon individual pupils. Raush and his associates were among the first to begin empirical studies looking at such effects.

> It can be seem that settings generally contributed more information and had greater effect on reducing predictive uncertainty about behavior than did individual differences among the children. In this restricted sense, the social situation was a more important determinant of social behavior than was the personality of the individual child. (Raush, Farbman, and Llewellyn, 1969, p. 325)

What they demonstrated was that the interaction of situation and person was more influential than the sum of each taken separately and in some cases than the combined sum (Argyle and Little, 1972, p. 15; Bowers, 1973, p. 321; Endler, 1973, pp. 299-300).

The crucial problem for the educational researcher is defining the daily experiences within the classroom so that they are neither trivial nor so complex that the practising teacher will find them difficult to recognize as part of her standard repertoire; they must also be readily discriminated by the investigator. For convenience, we will adopt the generic label 'situations' to refer to these daily experiences common to many classrooms.

B. Dimension I: Group Size

A number of dimensions suggest themselves for defining this smaller unit of analysis, the 'situation'. The difficult task is selection. We turn to previous literature to see if it can suggest crucial dimensions that produce a qualitative difference in pupil experience. Though few investigators have examined classroom activities, some have offered lists or categorizations of the elements common to instructional programmes (Perkins, 1964, 1965; Gump, 1967; Adams and Biddle, 1970; Gibbons, 1971). The major guide these studies provide is their repeated emphasis on the pupil's position within a group, whether in a class, with a limited number of his peers, or in tutorial.[1]

One variable which seems to be affected by group size is the nature and frequency of interaction. Dawe (1934), in a study of kindergarten classes with populations ranging from 14 to 46 pupils, found that an increase in group size was accompanied by an increase in the total number of children who spoke ($r=.82$), but a decrease in the proportion of the group who spoke ($r= -.58$).

In a clinical setting, Hutt and Vaizey (1966) found that normal subjects showed progressively less interaction as group size increased, but became significantly more aggressive in a large group.

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[1] Indeed, experience in "alternative student groupings" is considered so important in Sweden that it is one of the eight principles behind the building of open-plan schools in the Malmo region (Rudvall, 1973, p. 15).

In the natural setting of a nursery school at the University of Edinburgh, McGrew (1970) investigated the spacing behaviour of 20 preschool children under four experimental density conditions. The four-cell design was based on 100 percent and 50 percent of the class size and on 100 percent and 80 percent of the available classroom space. Supporting Hutt and Vaizey's (1966) finding, McGrew found a trend toward lowered contact at higher social densities. She also found that "differences in social density were more potent in eliciting adjustments in spacing behaviour than spatial density differences" (p. 204).

It has also been argued that the use of self-selected small groups provides a social situation that gives the pupil emotional security and support (Worthington, 1971, p. 60) with the implication that the secure child produces better work and, not incidentally, is learning valuable social skills. Adams and Biddle (1970) affirm the cognitive value of the small group, reporting that insightful questions about "cause and effect," "reasons why," and "rationalizations for," tended to appear in the peripheral groups rather than the central teacher-dominated group (p. 67) in the classrooms they studied. Anderson (1964) commenting on conclusions from two conferences on the Middle School co-sponsored by the Bedford (New York) Public Schools and the Educational Facilities Laboratories, suggests that "working, interacting groups seem to do best when composed of five to eight members...true discussion and valid decision making (as it relates to individual learning) is very difficult when the number of participants exceeds twelve" (pp. 206-207). Besides the social and cognitive values, Thomas and Fink's (1963) critical review of 31 empirical studies of small groups suggests that the smaller the group the more likely that individuals will be satisfied with the discussion and with their own part in it (p. 378).

Concerning indications of actual practice, Bealing (1972) reported data from a questionnaire study of ten percent of the Junior School teachers (189 teachers from 39 schools) from two LEAs (one of which was comprehensive). Four-fifths of the teachers used a group layout for furniture with five to eight pupils in a group; less than one-fifth rearranged furniture for different activities. Reporting on questionnaire data received from 186 teachers in British Columbia, Allen (1972) noted that about 39 percent of teacher time in open areas is spent with medium-sized groups, 28 percent with small groups, and 23 percent with individual pupils (p. 45). Unfortunately, no baseline is provided by teachers in buildings with conventional classrooms.

In a study of six traditional third-grade classrooms, Gump (1969) found that small group segments produced a higher amount of pupil involvement than total class segments (p. 214).

Looking at the evidence for the use of small groups in the classroom, Dunkin and Biddle (1974) summarize:

> Results show that traditional classrooms spend most of their time in whole-class activities or in independent seatwork. Use of small groups varies as a function of subject matter, is greater in the lower-grade levels and in multigraded classrooms, and is more likely in classrooms operated by younger teachers. Moreover, pupil... involvement is greater in small groups, and the discussion there is more likely to involve intellectualization. On the other hand, small groups are more likely to involve themselves with nonrelevant materials than is the classroom as a whole. ...these findings support the idea that small groups should be encouraged in the classroom, although their activities should be supervised by the teacher so as to keep them on target (pp. 383 and 388).

In a study of mathematics lessons in six informal junior classrooms (Boydell, 1974), though individual pupil instruction was the most popular form of teaching, interacting with the small group did account for from 9 to 24 percent of the teachers' time. Focussing on individual pupils in these same informal classes, Boydell (1975) found that pupils did engage in individual or group work with little supervision and without the wasted time on which critics carp. She does reiterate a point familiar to teachers: it is difficult to organize small group activities to encourage sustained, work-oriented interaction.

The smallest unit of teacher-pupil contact is individualized instruction. The literature on individualized instruction is extensive. Gibbons (1971) suggests a categorization of programmes as active (teacher-controlled), responsive (teacher-pupil cooperative planning), or permissive (pupil controlled) (p. 27) and provides a useful way of comparing programmes via graphic profiles. Perhaps an obvious point is that individualized instruction requires a ratio of one to one, not the usual thirty to one. For economic reasons most of the concern with individualized instruction has focussed on the use of pupils to teach other pupils (Lippitt and Lohman, 1965; Little and Walker, 1968; Lucas, Gaither, and Montgomery, 1968; Snapp, 1970; Gartner, Kohler, and Riessman, 1971; Niedermeyer and Ellis, 1971; Rosenbaum, 1973). Information on what happens to pupils when the individual contact with their class teacher is increased could not be found by Dunkin and Biddle (1974, p. 389) nor by this writer. This is a significant issue since as much or more of the benefit of the peer tutoring programmes is incurred by the tutor as by the tutee (Cloward, 1967; Frager and Stern, 1970; Landrum and Martin, 1970).

After visiting schools representing 'the best current practice' in 23 authorities over a two year period (1969-1971), Rosen and Rosen write:

> ...perhaps what is impelling us more than anything else is the growing awareness that children learn through talk and the way they do this is complex and varied (p. 41).

Informal educators would argue that the child in a teacher-dominated class discussion has little opportunity to learn in this way.

Yet our knowledge about what happens to the child when he is a member of groups of various sizes is scant, limited to the relatively general findings that group size effects the frequency and quality of interaction. We recognize with Charity James (1968) that "grouping is not teaching: it is a way of making better learning possible" (p. 68). What goes unsaid in that simple statement is perhaps more important; group size is easily defined and also easily teacher-manipulated. Further, group size meets our criteria of being meaningful to the teacher and easily discriminated by the investigator.

C. Dimension II: Teacher Participation

A second dimension which we have reason to assume makes a difference in the quality of the pupil's experience is teacher participation. Though in general the teacher occupies a 'front-and-centre' position (Adams and Biddle, 1970) directing and dominating verbal interaction (Bellack et al., 1966), the role of the teacher can be extremely varied (Gump, 1967). But what happens to the pupil in the informal classroom where he actually is encouraged to select and manage his own activities largely without teacher direction?

There has been almost no research into teacher-less groups. We did locate one small-scale study concerned with teacher-less small group discussion in secondary English (Mills, 1974). Twelve 16-year-old pupils following an English CSE course volunteered to participate, forming three groups with four members each. The three treatment methods, all conducted with the teacher absent during discussions, were:

1) write, 20-minute tape-recorded unstructured discussion, write;

2) 20-minute tape-recorded structured discussion guided by a sheet of questions provided by the teacher but to be used at the students' discretion;
3) 20-minute tape-recorded unstructured discussion (no question sheet).

This same sequence was followed by each group. The content was provided by three poems whose sequence was rotated among groups. The 24 written compositions and transcripts of the nine discussions were analysed. Mills reports favourably that in eleven out of the twelve pairs of written compositions the second piece of writing increased in length after the discussion (p. 14) and that analysis of the content of both the tapes and the compositions revealed "a clear advance of understanding and even a dramatic improvement in some cases" (p. 15). His points are supported with excerpts from the pupils' papers and taped discussions. He concludes that "the level of understanding reached by the end of a discussion is invariably greater than that which obtained at the beginning. Whether it is greater than that which would occur for all participants in a class-teaching system of organization, only further research could determine" (p. 19).

This is a challenge which those interested in informal education must consider.

Like group size, teacher participation meets the criteria we specified for dimensions of a situation: it is easily defined; it is meaningful for the teacher; and it is easily discriminated by the investigator.

D. Another Facet: Pupil Choice

Another critical facet in the description of the classroom is the element of pupil choice, specifically his choice of activities. Rosenshine and Furst (1973) claim that the complete list of current educational 'shoulds' could only be guessed at, but in their three guesses they include, "students should spend time initiating activities" (p. 161). Barth (1971) provides the rationalization for the 'should' in his outline of assumptions about learning in an informal classroom. He emphasizes that pupil choice ensures motivation, that children will learn if allowed choice of materials and questions, that they will often "choose to collaborate in some way," and perhaps most important that children have the "competence and the right to make significant decisions concerning their own learning" (p. 98).

The natural anxiety about pupil choice is that academic standards will fall. Cronbach (1963) counters this, claiming that "classes under teacher control and classes with group planning learn course material equally well...(which) means that teachers can afford to take time for group planning. Time used for this purpose is evidently repaid by more effective learning in the time that remains" (p. 515). Coleman et al. (1966, p. 323) report that their data suggest that the child's sense of control of his environment is important to the early achievement of all children, and to the later achievement of children from disadvantaged groups.

More reassuring than either of these assertions is the knowledge that in the first instance it is the teacher who creates the classroom environment. Since pupils cannot make choices in a vacuum (Kohl, 1969, p. 99), it is up to the teacher to provide the initial opportunities and then to widen the areas of choice by providing (and encouraging pupils to provide) a larger variety of stimulating materials and to increase the proportion of school time spent on pupil-chosen activities as appropriate (Muir, 1970, p. 18).

Pupil opinion is clear in the tallies of pupil questionnaires administered at two open-plan schools in Saskatoon (Kindrachuk, 1970, Appendix 4). Over 77 percent of the pupils agreed to the statement "I like the chance to choose my own topics to study."

Pupil choice, a vital component of the informal classroom, will be investigated through teacher and pupil queries as well as observation since it is difficult to judge from observation to what extent the pupil activity is teacher directed.

E. The Situations: A First Formulation

Since the definition of informal education proves so elusive, since the dichotomous stereotypes of the 'progressive' and the 'traditional' classroom appear to be accurate descriptions of so few classes, and since previous research efforts offer a paucity of useful, significant findings, we propose to shift the focus to situations which may be found in classrooms of differing philosophical orientations. Using our two dimensions of group size and teacher participation provides an initial matrix looking like this:

Group Size:	With Teacher	Without Teacher
Individual		
Small Group (N=2-6)		
Medium Group (N=7-12)		
Large Group (N=13-Class)		
Combined Classes		

It is reassuring to note that many of the situations defined by this matrix have been previously singled out and labelled by teachers, presumably because they consider them important. For example, the individual pupil working with teacher participation is usually referred to as a 'tutorial' and without teacher participation as 'seatwork'; a small group with teacher participation is referred to as a 'seminar' or 'group discussion' and without teacher participation as 'project or group work'; the large group with teacher participation is referred to as a 'class lesson' or 'recitation' while the combined classes will most likely mean 'presentation'. (We thought it unlikely that we would find many instances of sizable groups of children (a whole class for example) working without teacher participation, but included them in the matrix prior to actual investigation.)

Out of the rhetoric and the research we can begin to see a profitable line for further inquiry.

CHAPTER TWO

TWO STUDIES: METHODS AND SAMPLES

SECTION I. INTRODUCTION

From our review of the literature, the most profitable approach to the questions raised by informal educators appeared to be the situations. Though Bennett and Jordan (1975) delineated seven dimensions distinguishing the 'traditional' and the 'progressive' classroom, realistically we could sample only a few. We intended to concentrate our efforts in the first instance on group size (related to their Factor II) and the presence or absence of teacher participation, and in the second instance on the quality of pupil experience, with special attention to choice (related to their Factor VI).

The research was conducted as two studies, beginning with an exploratory study of 12 classrooms and continuing with a study of 30 further classrooms. We will refer to these as Study One and Study Two.

Before being committed to a set schedule and procedure, the investigator visited three schools, noted for either their informal approach or their architecturally very open building, hoping to gain new insight, to check the validity of the grouping situations in these contexts, and to guide the decisions relating to the details of the research design. Classes spanning the age range of the primary school were visited. Following these preliminary visits, the second year junior level was selected for the study,[1] instruments were designed and piloted, and arrangements were made for the gathering of data for Study One (see "Procedures," below).

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[1] Several factors were operating in this selection: both the Infant school and the top juniors have been the focus of the bulk of the research on the informal classroom. Though the work in that area is far from complete, it seems an appropriate time to begin consideration of children in the middle years. A second year junior pupil would have already had one year to orient to the school if there were a major change (building and/or Head Teacher) after the Infant School and yet this age would substantially avoid any differences that might occur because some of the schools still participate in the 11+ examination system while others do not.

Following the analysis and interpretation of the data from Study One, a second study was designed and carried through. This had a dual purpose. First, it was intended to further clarify and confirm some of the results from Study One. This included observation of the teacher's use of six groupings which had proved of interest; definitions of the groupings were reformulated in light of the results from Study One. In particular, it was clear that grouping could be a function of the furniture available; of the teacher's method of organizing assigned work; or of an attempt to allow pupils the opportunity to plan, or in some way affect their own work. Further, it was evident that there were many different contexts leading to the individual pupil working on his own. The definitions and the methods of recording the groupings took these considerations into account.

Our initial concern with pupil choice also evolved after Study One into a closer look at the type of framework that the teacher might provide. The pupil might be allowed choice in one or more of such areas as: when he does an activity, whom he selects for working companions, where he works, and the materials he selects for use.

Thus, the first part of Study Two was concerned with refining and narrowing the focus of Study One; it also sought to augment the sample.

Secondly, our focus shifted from general classroom patterns to the experiences of the individual pupil. According to the advocates of informal education, the quality of school life in the informal classroom will be different for the child. He will have the opportunity to work in groups of varying sizes, will be encouraged to interact frequently with classmates, will view the teacher as someone open to his questions, and will make some of the choices relating to his school work. These emphases are pervasive; we might expect them to affect and to be reflected in many aspects of classroom life, especially the language used. Language is subtle; there are many ways it can be used to create an "atmosphere" or set of expectations (Lewis, 1975; Barnes, 1969). Such aspects of language use as who takes the initiative in beginning a conversational exchange, and whose language is limited to the role of response, seem both obvious and central to classroom experience. Closely related to the question of initiation is that of the type of discussion which results: does it take the form of a succession of statements of fact, of question, answer, and evaluation, or of a more open-ended inquiry? All of these are directly related to the expectations set by the teacher, and equally directly reflected in the language environment of the classroom (Bellack et al., 1966).

To begin to study the experiences of the individual child, two quite different approaches were decided upon. First, we observed the language environment for individual children. Who interacts with the child? At whose initiation? For what purposes? Second, we asked individual children about their classroom experience. What choices did they have? Which activities seemed like work? What sort of movement and talk were permissible?

The instruments chosen or developed for use in each study are described in the next section, followed by an account of the procedures employed, and a description of the samples gathered.

SECTION II. INSTRUMENTS

A. Study One

1. Teacher Questionnaires

Two questionnaires were used in the first study. One was selected to provide baseline data on the teachers; the other was developed to measure teachers' attitudes toward the groupings (Appendix I).

Teacher Background

To provide demographic information such as age, training, teaching experience, and class size and to provide data on the teachers' attitudes toward educational issues, particularly formal and informal methods, a shortened version of the SSRC's Primary School Project Teacher Questionnaire developed at the University of Lancaster was administered.[1] Items were omitted[2] for which data could be obtained from the combination of conversation with the teacher, our observation schedule, and our Individual Pupil Schedule (both described below); we hoped to minimize teacher time expenditure. Part 3, "Opinions About Education", was used in its entirety. It is composed of three sections. The first section, "Teaching Aims", is composed of nine items which the teacher is asked to rate on a five-point scale from 'not important' to 'essential'. The next section, "Opinions About Education Issues", asks the teacher to consider such issues as discipline, streaming by ability, group work, marking, and creativity, rating each of 10 items on a five-point scale from 'strongly disagree' to 'strongly agree'. The 10 items in the third section, "Opinions About Teaching Methods", directly ask for the teacher's opinions about formal and informal teaching methods. Again, she is asked to respond on a 5-point scale, from 'strongly disagree' to 'strongly agree'.

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[1] The findings from the project for which this questionnaire was developed are reported in Teaching Styles and Pupil Progress (Bennett, 1976). We will refer to the instrument as the Teaching Styles Questionnaire.

[2] In Part 1 items 7 through 15 and in Part 2 items 10 through 28 were omitted. A copy of the whole instrument is included in Appendix I.

Teacher Attitudes Toward the Groupings

The first stage of the study was prefaced on the importance of the grouping patterns in the classroom. Following a Kellian (1963) view, it was essential to discover the teachers' attitudes toward these groupings. It was anticipated that some groupings would be universally used and approved: almost every teacher reads stories to the entire class and almost every teacher has moments when one child receives her undivided attention. By contrast, some groupings fit a stereotype: the class lesson for the formal teacher; small group instruction for the informal teacher. Responses were sought which would begin to delineate the groupings of agreed value and the groupings that discriminate between teachers of conflicting views and practices.

The Pilot Instrument

The initial effort went into administering a written repertory grid, similar to Duck's (1973), in which teachers were asked to rate the groupings on constructs which they supplied (Appendix I). The repertory grid technique was selected to measure how the teachers were construing the groupings both because it is relatively free of investigator bias and because it allows the researcher to measure the structure of the teachers' responses. The investigator had used an oral triadic elicitation procedure (Bannister and Fransella, 1971) during her M.A. research where it took nearly 4 hours to administer a grid for which 15 constructs were elicited; that time commitment did not seem appropriate at this stage, so a written version was constructed that could be completed without the investigator present.

Preliminary work with four teachers indicated that this procedure was taking longer than warranted by the information gained. It also seemed likely that the grid would turn into a no-response item if the format were not altered.

Advantages and Disadvantages of the Groupings: Teacher Questionnaire for Study One

Since the objective was to discover teachers' attitudes toward the groupings, a simpler format listing the grouping situations and asking the teacher to supply 'advantages' and 'disadvantages' seemed likely to produce the constructs without the frustration of the more complex form (Appendix I).

The response on the simpler form was satisfactory. It could not be factor analysed as the repertory grid could have been; instead a content analysis (Berelson, 1952) was carried out (Chapter Three).

2. General Pattern of Classroom Activities: Observation Schedule for Study One

To provide a record of grouping patterns during one school day, an observation schedule was designed for use by the investigator while in the classroom. The schedule itself contained a row for each five-minute period of observation and ten columns, one for each of the five group sizes (individual, small group, medium group, large group, and combined classes) both with and without the teacher. Extra space was provided for 'comments' (Appendix I). Entries were made for each grouping being used during the observation period, indicating both the content area and the number of children involved.

The observation schedule required a precise definition of group size, but previous research provides no commonly agreed criteria.

Hutt and Vaizey (1966, p. 1372), for example, label groups of six or fewer as 'small', groups of 7 to 11 as 'medium', and groups of 12 or more as 'large', while Lueders-Salmon (1972) defines the 'small' group as one with 3 to 10 members and the 'large' group as one with eleven members or more. Anderson (1964, pp. 206-207) elaborates the distinctions, explaining that groups interact best when composed of 5 to 8 members, with true discussion and valid decision-making difficult with more than 12 participating.

The discriminations for this study were made on the basis of ease of observation, practical educational considerations, and groupings of interest in previous studies. 'Small group' was defined as 2 to 6 pupils, a visually comfortable distinction for the investigator since so many schools have metre square tables, round tables, or hexagonal tables all of which accommodate up to six comfortably. The medium group was defined to include 7 to 12 pupils, in order to include situations in which the teacher had divided the class into three groups such as high, medium, and low ability settings. From an educational perspective, a group as large as 13 is unlikely to differ substantially in terms of the quality of pupil participation from a considerably larger group. The vocal, dominant pupils would tend to prevail while others remained silent; the teacher would find it difficult to individualize instruction as she might with a smaller group. Previous research interest focussed primarily at the two extremes of group size. Gump (1974, p. 588) proposing concepts and methods for measuring educational environments in open-plan and traditionally designed primary schools, and Ellison, Gilbert, and Ratsoy (1969, pp. 19-20) contrasting verbal interaction and teacher utilization of time in open-plan and conventional upper primary classrooms, claim that large combined class groups occur without an equal balance of small groups in the open-plan setting; in Gump's sample, the small groups occurred slightly less frequently in the open setting than in the closed settings. Yet the small group is the stereotype of open-plan activity.

For these assorted reasons, then, the group sizes adopted for this study were:

1) the individual pupil,
2) the small group composed of 2 to 6 pupils,
3) the medium group composed of 7 to 12 pupils,
4) the large group composed of 13 pupils to the entire class, and
5) combined classes.

The other dimension considered was presence or absence of teacher. Here we considered teacher participation within the groups and not a more general monitorial role. For the 8- to 9-year-old pupil, it is reasonable to assume that the child's activities have been set, or at least approved, by the teacher. 'Without teacher', therefore, does not imply lack of supervision. If the number of teachers within the situation exceeded one, then the total number of teachers present was noted.

Activities were recorded in 5 minute sweeps beginning 5 minutes after the beginning of the day ('a.m. commencement') and stopping when the teacher told pupils to queue, tidy up, go out to play or dinner or in any other manner signaled the beginning of a major transition time, during which pupil movement could be expected to be diverse and rapid enough that accurate recording of group changes would be difficult. Transitions were noted in the comment section. We were looking at the frequency of the learning situations that do occur rather than the management techniques that enable the teacher to place the children efficiently within those groupings.

3. Individual Pupil Schedule

To provide data on the grouping patterns occurring over several days without necessitating the presence of the investigator for more than one day, an individual pupil schedule was designed that could be completed by the teacher. By asking the teacher to assume the role of the researcher, data could be gathered over a longer period than resources would have permitted for investigator observation. The schedule was brief and straightforward: clear categories and blanks to tick, not essays to write (Appendix I).

The schedule divides the school day into four parts: commencement to a.m. break, a.m. break to dinnertime, p.m. commencement to p.m. break, and p.m. break to hometime. A tick in one blank provides data on the size of group in which the pupil is working, on whether or not the teacher is participating, and on what the content area is.

For Study One, the activities of four consecutive school days were sampled by following four pupils (2 boys and 2 girls) in each class through a day. The first child was observed by both the investigator and the teacher; the teacher queried any unclear parts of the form early in the day, and the afternoon was used to check reliability, resulting in 85.6 percent agreement between the teacher and the observer. Three other individual pupil schedules were left to be completed by the teacher on the three subsequent school days.

Thus, the General Pattern of Classroom Activities observation schedule provided an overall perspective on the activities of the entire class for one day while the Individual Pupil Schedule portrayed the activities of four consecutive school days as experienced by four different individuals, one per day.

B. Study Two

1. Teacher Questionnaires

In Study Two, two questionnaires were administered to provide data on teacher attitudes and practices and to validate the observer's classification of teachers as formal, mixed, or informal (Appendix II). The Teaching Styles Questionnaire was again administered. The instrument provides valuable background data as well as a measure of teacher formality/informality.

A second questionnaire was also used. It had been developed in the American context by Walberg and Thomas (1971; 1972) working through Training-Development-Research Associates, Inc., commissioned by the Education Development Center, Newton, Massachusetts and supported by the U.S. Office of Education. They conducted a content analysis of the major works related to open education (i.e., what we refer to as 'informal'), ranging from Tolstoy and Dewey to Richardson and Neill; drafted "106 specific, explicit statements" (1971, p. 199); and submitted them for comment to 29 prominent open educators residing in North America. From their reactions, 50 items representing eight dominant themes were selected for inclusion on the Teacher Questionnaire and a parallel Observation-Rating Scale. These eight themes are:

1. Provisioning for learning including not only the material, equipment, and furniture, but also the procedures and expectations the teacher establishes along with the organization of time and the grouping of children.
2. Humaneness characterized by respect, honesty, and warmth.
3. Diagnosis which determines the way the teacher guides and extends the child's learning.
4. Instruction including the range of ways the teacher responds.
5. Seeking opportunities to promote personal growth.
6. Evaluation for both the pupil's and the teacher's benefit.
7. Self-perception or how the teacher views herself and her own role.
8. Assumptions or how the teacher views children, knowledge, and the process of learning.

The 50 items are rated on a 4-point scale spanning from 'strongly disagree' to 'strongly agree'.

2. Observation-Rating Scale

The 50 items on the Walberg and Thomas (1971) Observation-Rating Scale parallel those on their teacher questionnaire thus providing a comparison for the data gathered from the teacher questionnaire.

In addition to observation, thirteen of the items require clarification through conversation with the teacher.[1] For example, item #26 "Teacher uses test results to group children for reading and/or math," is difficult to respond to accurately from observation alone. The groupings are usually obvious, but the basis for them is not.

In testing the instruments in 21 traditional classrooms in the U.S., 21 open classrooms in the U.S., and 20 open classrooms in the U.K., Walberg and Thomas (1972) reported that "it can be seen that Open classes differ sharply from Traditional on 5 of the 8 criteria ... Moreover, the differences between Open and Traditional teachers are far larger than the differences found either between schools of different socioeconomic strata or between schools in the United States and Great Britain" (pp. 206-207).

We are extending the use of the instruments from their sample of Infant (5- to 7-year-olds) classrooms into Junior classrooms and from its American basis further into the British context by including traditional as well as informal classes in the British sample.

The correlation between total scores on the Teacher Questionnaire and the Observation-Rating Scale was .78, reflecting the fact that observer and teacher ratings had a similar pattern, although observer ratings tended to be more extreme.

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[1] These thirteen items are asterisked in the margin of the instrument, Appendix II.

3. Grouping, Framework, and Movement Observation Schedule

An observation schedule was designed to allow the rapid recording at regular intervals of the use of six groupings and of the framework options (Appendix II). The six groupings were:

With Teacher:	Individually Small Group Large Group Combined Classes
Without Teacher:	Individually Small Group.

The framework teachers provided for pupil choice was divided into six categories:

Timing (pace, sequence, and duration)
Partners
Location
Content (or discipline)
Activity (within a discipline)
Materials.

Framework is discussed further in presenting the results from this instrument (Chapter Five: Organization and Evaluation of the Curriculum). It was recognized that more than one grouping and more than one framework could be occurring at the same time. Space was provided for comments on unusual or complex patterns.

The schedule was designed so that the duration of each grouping as well as major changes in the activity of the class as a whole could be recorded.

In addition, teacher and pupil movement were assessed by global ratings at the conclusion of the observation session. Movement was rated on a 4-point scale ranging from 'no occurrence' to 'frequent'. Pupil movement, which could occur 1) under teacher direction, 2) with teacher permission, or 3) at the pupil's discretion, was divided into five types:

1. movement to the teacher for any purpose from any location,
2. movement for peer interaction or provisioning within the pupil's quadrant,
3. movement within the room,
4. movement within the building, but out of the room, and
5. movement out of the building.

There were thus 15 categories of pupil movement.

There were five categories of teacher movement:

1. remaining at her/his desk,
2. remaining at the front of the room,
3. moving to individual pupils,
4. circulating among tables or groups, and
5. supervising outside the room.

4. Language Observation Schedule

A second observation schedule was designed, piloted, and modified to record pupils' use of language in classroom contexts ranging from formal to informal (Appendix II). The instrument allows for the categorization of verbal utterances under the general framework of initiation or continuation, in keeping with the line of research followed by such investigators as Flanders (1964, 1970) and Bellack et al. (1966). We have not, however, followed their practice of using the term 'response' since this connotes a passive interaction. While initiation is by nature active, it does not follow that the succeeding utterances will be passive. 'Continuation' seems a more accurate label.

For each utterance, speaker and receiver are noted. The content is classified as statement, question, evaluation, social (non-instructional utterances such as greetings), or not clearly heard. Though these are acknowledged as rough categories, the exploratory nature of our language study made further refinement impossible. Existing classroom language schedules, including that recently published by Sinclair and Coulthard

(1975), are not appropriate for recording pupil-pupil interaction which is reputedly a central feature of the informal classroom. Following the distinction made by Langer (1962), we also distinguished between the objective comments that form the bulk of our daily interactions and the subjective expressions that reflect the individual's own perceptions of experience.

The sequence and length of the exchange are recorded and a space for additional comments is provided.

Though limited resources made it impossible to gather reliability data based on two observers or on repeated visits, as would have been desirable, it does appear that the instrument itself is relatively facile to use. Using transcripts of language from primary classes (Rosen and Rosen, 1973, pp. 44-48), there was a 90 percent agreement between the investigator and an assistant on the classification of utterances. Most of the disagreement was caused by the difficulty in assessing the intended audience from transcripts in which there are few context clues and no visual clues.

5. Pupil's Perception of School: Interview

A pupil interview schedule was developed and piloted to provide data on the pupil's perception of school (Appendix II). The first page of the schedule lists 26 activities commonly observed during Study One, each of which the pupil is asked to rate on a 5-point 'work/play' scale. This distinction was selected since school is commonly regarded as a place where one works (Jackson, 1968), yet the value of play to cognitive development has been stressed (Bruner, 1973) and the informal educator also professes special concern with the child's enjoyment of school (Barth, 1970). To gauge the basis on which the child is making the 'work/play' discrimination, after he rates the

26 activities, he is asked why he considers various activities to be work or play.

Items on the second page of the schedule were designed to focus on the child's awareness of his teacher's expectations, as well as his own opportunities for making decisions and for expressing opinions or asking questions. These support data to be gathered from the teacher questionnaires, thus providing two perspectives.

Related questions were placed at intervals in the interview schedule to make responses as independent as possible. The instrument was designed to take approximately 15 minutes in a one-to-one interview situation. The interview was tape recorded so that ratings could later be checked and so that constructs elicited relating to the 26 activities could be transcribed verbatim for the content analysis (Chapter Five).

SECTION III. SAMPLE SELECTION

A total of 50 classes including 8-year-old pupils in 43 schools were visited on the recommendations of a county adviser, a warden of a teachers centre, and a research officer for the Schools Council Open Plan Schools Project. Twelve teachers were visited for Study One, during the summer term of 1975:

	Formal	Informal	
Open-Plan Rooms	3	3	6
Conventional Rooms	3	3	6
	6	6	12

Study Two, conducted during the winter term of 1976, was composed of 30 further teachers:

	Formal	Mixed	Informal	
Open-Plan Rooms	4	8	5	17
Conventional Rooms	4	5	4	13
	8	13	9	30

At the conclusion of a full day of classroom observation plus discussions with both the class teacher and the Head Teacher, teachers were rated formal, mixed, or informal on the basis of the subjective judgment of the observer, who is also a teacher with experience in American and British schools with pupils spanning the 5- to 11-year-old primary school range. These subjective judgments were validated by teachers' responses on the Teaching Styles Questionnaire (Bennett, 1976), and in Study Two also by their responses to the Walberg and Thomas (1971) Teacher Questionnaire.

The investigator made it clear to both the county adviser and the warden of the teachers centre that the competently run school with capable teachers of varying styles was the objective. Further, when talking with the Head Teacher, the investigator explained the proposed research and acknowledged the strain this might be to the less secure teacher. At that point some Heads did decline to participate since their teacher(s) of second year junior pupils would, in their estimation, be unsuitable for or uncomfortable with the type of observation required for the study. Using this initial screening, we found that only a few teachers had to be omitted from the study because they appeared markedly less capable. It may be that they were uncomfortable under observation, but in any event the activities in the classroom seemed chaotic rather than coherent. Though the observer remained for the entire day as scheduled, the data were not used. All of the teachers who were included in the two studies were considered capable.

SECTION IV. PROCEDURE

A. Study One

Head Teachers were contacted by telephone to explain the purpose of the research, ask permission to visit, and set a date convenient to the class teacher.

The investigator arrived at the school early enough to talk first with the Head Teacher and then with the teacher, clarifying any points that might have arisen since the arrangements were made and also soliciting background data on the school and the staff.

1. Individual Pupil Schedule

In the classroom with the teacher, the first and the seventh child from the class register listings of boys and of girls were selected for intensive observation, giving a total of four children in each class. If the child were absent or if the teacher felt strongly a particular child should not be observed, the next child down on the register listing was selected.

One of these four children was selected by the teacher for observation that day by the investigator and by the teacher who independently filled out the Individual Pupil Schedule on the child. At some point during the day, usually during the morning break or dinnertime, the investigator reviewed the form with the teacher to make sure that there was no confusion over categories. Where differences occurred, they were discussed and then the appropriate response was entered on the form with the discarded one crossed out. The afternoon session was scored for reliability, resulting in 85.6 percent agreement between observer and teacher in rating the groupings experienced by the individual child (Holsti, 1969).

2. Observation

The observation schedule that would be completed by the investigator was shown and explained to the teacher. Throughout the day the teacher was asked to clarify any groupings, explain where individual pupils or groups had gone, and in general complete the picture that the observer had of the activities affecting the children in the class. Details were also recorded about any specialist teachers who worked with the children or about timetabled school activities such as music, physical education, or foreign languages that would make a significant difference in the groupings that might appear in the individual pupils' schedules for the subsequent days when the observer would not be there to clarify them.

The teacher questionnaires were explained. A stamped, addressed envelope was left for the teacher to mail the two questionnaires and the remaining three Individual Pupil Schedules to the investigator.

Once the children arrived, the observer sat to the side of the class, out of the mainstream of activities, recording grouping patterns on the observation schedule.[1] The observation schedule was used throughout the day for Study One.

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[1] Classes varied considerably in the extent to which children interacted with the observer. In the most formal classes the children remained in their seats during the entire school day and had no overt interaction with the observer; in the most informal classes the children came over to see what the investigator was writing and to offer comments.

During the day, the observer remained with the teacher, using breaks and dinnertime to talk with the teacher and other members of staff or to share duties with her.

The observer was always available for further discussion after school with either the teacher or the Head Teacher, but usually this was minimal or primarily social in nature.

3. Teacher Classification

During the day of observation, it was easy to categorize the room as open-plan or conventional. There were instances where the school building was of mixed design, but only the particular classroom observed was relevant to this study.

Categorization of teacher practices was done at the end of the day of observation on the basis of the observer's overall judgment. For the twelve teachers included in Study One the categorization seemed clearcut. The observer's initial judgment was later validated by analysis of the total scores computed from teachers' responses to the Teaching Styles Questionnaire, in which large and significant differences were found between formal and informal teachers (see 'Sample Description' below).

B. Study Two

As in Study One, initial contact in Study Two was by telephone to the Head Teacher of the school, to explain the research, ask permission to visit, and set a date convenient to the class teacher. Following this, a letter was sent to the teacher delineating again the emphases of the class observation and individual pupil interviews and explaining and enclosing the two teacher questionnaires (Appendix II).

The investigator arrived at the school well in advance of the pupils to become acquainted with the Head Teacher and the class teacher and to answer any queries. Non-teaching time throughout the day was used to gather data about the school and to clarify any questions the teacher might have with respect to the questionnaires.

1. Observation

For the 30 classes in Study Two, observation was reduced from the entire day to one hour in the morning and 40 minutes in the afternoon. The investigator observed the first hour of morning instruction including academic work (reading, writing, maths) and the first 40 minutes of afternoon activities that included art/craft, science, or social studies work for at least some of the pupils.[1] A balance of the 'hard' and 'soft' subjects, of the morning and afternoon, and of the areas likely to represent the more structured and the less structured modes of learning was sought.

Observation was divided into 5 minute periods each of which began with a 2 minute sweep of the room to note and record the occurrence of the six groupings and of any framework options given. During the last 3 minutes of each observation period, the investigator's attention shifted to the use of language in the classroom, focussing on an individual pupil.

2 minutes Grouping, Framework, and Movement Observation Schedule
+ 3 minutes Language Observation Schedule

5 minute observation period.

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[1] Religious education, physical education, music, and foreign language, all observed during Study One, were omitted from observation in Study Two. Though school policy influences all aspects of school life, it seemed especially dominant in these areas. We were primarily interested in the areas where the teacher had primary responsibility for the atmosphere and the curriculum.

There were 12 such periods during the morning and 8 in the afternoon, making a total of 100 minutes of structured observation in each class in Study Two.

Four children (2 boys and 2 girls) were observed in each class using the Language Observation Schedule (Appendix II). To balance our sample of pupil language use, the teacher was asked to select a boy and a girl who were generally talkative and another boy and girl who were rather quiet, preferably from different quadrants of the room to allow a sampling of activities in those classes where more than one activity occurred simultaneously. This sampling of locations was also intended to give a representative picture of language use throughout the classroom since previous research in more formal classes (Adams and Biddle, 1970, p. 50) suggests that children nearer the teacher are afforded more opportunities for interaction. The observation of boys and girls, and of talkative and quiet children, was rotated both from morning to afternoon, and from day to day.

2. Pupil Interviews

During interludes in the day when the investigator was not observing, four pupils from each class were interviewed (1 boy and 1 girl considered capable by their teacher and 1 boy and 1 girl considered less capable). To maintain independent samples, the teacher was asked to select four different pupils from the four selected for language observation.[1] The order of pupil interviews was rotated, balancing boys and girls, capable and less capable, fresh and weary. The investigator progressed through the interview schedule recording pupil responses as they were made; interviews were also tape recorded so ratings could later be checked (Appendix II).

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[1] Eight pupils from each class (4 observed for the Language Observation Schedule and 4 interviewed) is a large enough percentage to ensure that the sample is not composed entirely of 'model' pupils, yet it is small enough so that the observer has a sense of the pupils as individuals rather than as a class unit.

It was usually possible to end the day with all the data in hand, but stamped, addressed envelopes were available for any teacher who had been unable to complete the questionnaires.

SECTION V. ANALYSES: STUDIES ONE AND TWO

A. Computer Analyses

In both Study One and Study Two, data were prepared for computer analysis using the University of Manchester Regional Computer Centre facilities from the University of Lancaster. SPSS and BMD programs (Nie et al., 1975; Dixon, 1967) were used to calculate chi-squares, Fisher's Exact Test, analyses of variance, and descriptive statistics.

Chi-squares corrected for continuity are appropriate for testing the significance of the differences among groups when the data are frequencies in discrete categories or can be usefully reduced to frequencies (Siegel, 1956, pp. 175-179). They compare the actual with the expected, not assuming a normal curve. From our data, examples include teacher responses on background variables such as sex and training, and occurrence or non-occurrence of pupil planning in small groups. In those cases where the tables reduce to 2 x 2 contingency tables with N less than or equal to 20, the SPSS program automatically calculates Fisher's Exact Probability (Siegel, 1956, pp. 96-104). Frequencies were too small for appropriate use of chi-squares when responses were divided along a 4- or 5-point scale. Items in these cases were recoded into agreement versus disagreement.

Because we wanted to group our data in two ways, comparing variables relating 1) to formal, mixed, and informal Style and 2) to open-plan and conventional Building Type, two factor analysis of variance was appropriate.

Study One sampling ensured that equal numbers of teachers were included in each of the four cells. Because of the equal numbers, Building and Style effects were independent of each other and could be tested directly without correction. It was also possible to test certain within teacher effects such as morning and afternoon differences in practices. (Such analyses become extremely complex and beyond the range of most computer programs when cells are unequal.)

To avoid discarding data, the inconvenience of unequal cells was accepted for Study Two. The weighting option available in SPSS (Nie et al., 1975, pp. 129-131) was used to compensate for the over/under-sampling of cells in contingency table analyses (i.e. chi-squares). To simplify, instead of counting each occurrence once as would usually be done, it is augmented in instances of smaller cells and diminished in instances of larger cells. For our obtained cell frequencies of:

4	8	5	17
4	5	4	13
8	13	9	30

weighting by the ratio of expected to observed frequencies in each cell gives as appropriate weights:

1.133	.921	1.020
.867	1.127	.975.

Cell frequency changes are less than 1 in each case, while marginal and grand totals remain unchanged. The resulting weighted analyses and the associated statistics provided by SPSS give tests of Building and of Style effects which are not confounded with one another.

In the analyses of variance, this weighting was not necessary since in the classical model each effect is tested after allowing for all other effects. The associated adjusted means are automatically provided by the SPSS program.

B. Composite Scores

To obtain indices of overall informality on the Walberg and Thomas (1971) instruments and on the Teaching Styles Questionnaire (Bennett, 1976), the following formula was used:

Total Informal Tally
- Total Formal Tally
+ Constant (Calculated to avoid negative numbers) .

For the Walberg and Thomas instruments the constant for the total score was 75, giving a midpoint of 100 with a possible spread from a formal score of 25 to an informal score of 175.

For the Teaching Styles Questionnaire the constants for the sections were:

Teaching Aims	15
Opinions about Education Issues	26 .

The Opinions about Teaching Methods (Formal versus Informal) score was calculated as:

Total Informal Methods score
- Total Formal Methods score
+ 50 .

The composite score was calculated as:

Teaching Aims score
Opinions About Education Issues score
Opinions About Teaching Methods score
- 50 .

For Study Two, four pupils were interviewed and a different four pupils were observed using the Language Observation Schedule. These were treated as multiple measures on a single teacher and were combined into a single score. For the pupil interviews, individual pupil responses were treated as 'agreement' or 'disagreement' to an item, and combined so that 'agreement' reflects the consensus of at least 3 of the 4 pupils interviewed from each class. For the Language Observation Schedule, results from the 4 pupils were totalled to give the total utterances recorded in each category for the fixed periods of observation.

C. Alpha Level

We accepted the convention that results are meaningful if they would occur by chance fewer than 5 times in 100 (i.e., $p < .05$). Further cut-off points at .01, .005, and .001 were used to provide a fuller report of results. For the smaller sample in Study One, results at the .10 level were reported as trends.

SECTION VI. SAMPLE DESCRIPTION

A. Study One

1. Teacher Background

Each of the twelve teachers in Study One completed a shortened version of the Teaching Styles Questionnaire. Chi-square tests and analyses of variance (Building by Style) revealed that there were no significant differences among the four groups of teachers on the background variables of age, teacher training, or teaching experience. This was a homogeneous group in terms of teacher preparation; all were college educated with a primary orientation. Eleven were non-graduate certified teachers; one was a graduate. It was a heterogeneous group in terms of age and teaching experience, though there were no significant differences among the four groups. Age was categorized in ten-year bands beginning with 'under 30 years' and extending to 'over 60 years'. The teachers in this sample ranged from 'under 30 years' to '50-59'. Teaching experience ranged from four years to 27 years, with one teacher in each cell having 20 or more years of teaching experience. Eleven of the twelve teachers were married; eleven were female. Roman Catholic, Church of England, and County Primary affiliations were each represented by four schools.

2. Year Groups Taught

All six formal teachers had second year junior classes. One of the informal teachers had a second year junior class; four had mixed first and second year junior classes and one was in a team teaching situation in which his base group was second year juniors, but both he and the pupils worked with children throughout the junior age-range during the day.

3. Class Size

Class size did differ significantly (Building by Style interaction, F=20.6, df=1;8, p< .01) among the four groups. This was the result of the generally smaller class size in the informal open-plan rooms (Table 1). One of the classes was based in a small resource area which could accommodate no more; the other two classes had temporarily low enrollments as the result of new schools opening near by.

Table 1: Class Size in Study One

	Open-plan		Conventional	
	Formal	Informal	Formal	Informal
Class 1	38	23	30	34
Class 2	35	26	32	33
Class 3	31	27	31	32
Mean	34.7	25.3	31.0	33.0

4. Teacher Attitudes

Remembering that the twelve teachers were categorized formal or informal on the basis of the investigator's observation of their classroom practices, it is especially important to find that the teachers' own reports about their attitudes are consistent with the observer's categorization.

Two factor analyses of variance (Building Type by Teaching Style) show that there are Style effects significant beyond the .05 level for the sections 'Teaching Aims' and 'Opinions about Teaching Methods' with the section 'Opinions about Education Issues' tending toward significance (p< .10) (Table 2). The composite score from the three attitude sections reveals a Style effect significant beyond the .01 level. There were no significant Building effects. There was a significant Building by Style interaction for the 'Teaching Aims' section in which teachers in the conventional rooms had the most extreme scores.

Table 2: Teacher Attitudes in Study One

Measures	Means						
	Formal		Informal				
Teaching Styles Questionnaire:	Open (N=3)	Conv. (N=3)	Open (N=3)	Conv. (N=3)	F-ratios (df=1;8) B	S	BS
Teaching Aims	23.0	20.7	21.3	27.0	2.85	5.60*	16.46**
Opinions about Education Issues	23.3	21.0	27.3	28.3	0.05	3.81#	0.33
Opinions about Teaching Methods	49.0	45.3	58.7	60.7	0.04	8.22*	0.42
Composite Score	45.3	37.0	57.3	66.0	0.00	12.10**	2.08

#p< .10, *p< .05, **p< .01

In summary, the classification of teachers as formal or informal, made on the basis of observation, is supported by their questionnaire response.

B. Study Two

In Study Two, sampling was augmented to include teachers with mixed teaching styles. The teachers of thirty classes containing second year junior pupils were considered formal, mixed, or informal on the basis of their observed practices. None of these teachers had been included in Study One.

1. Teacher Background

Chi-square tests and analyses of variance (Building by Style) of responses to the Teaching Styles Questionnaire (Bennett, 1976) showed no significant differences among the six groups of teachers on the variables sex, age, University or College training, graduate or non-graduate status, teaching experience, or class size. Seven of the teachers were men; 23 were women. Teachers reported their age in 10-year spans on the questionnaire; this sample ranged from the 'under 30' year to the '50-59' year span, with 17 teachers in the under 30 category. Twenty-seven of the teachers were trained at colleges; three at universities. Twenty-three were non-graduate certified teachers; seven were graduates. Twenty-seven had primary-oriented teacher training; 1 was secondary-oriented; and two had no formal teacher training. Classes averaged 31.9 pupils, with a range from 23 to 41 pupils. (It is ironic after the significantly smaller class size of the informal, open-plan classes in Study One, that for Study Two this group averaged the largest class size.) Teaching experience averaged 6.9 years with a range from the probationary year to 18 years of teaching experience. Procedures adopted in sample selection (see above) were designed to insure that all of the teachers included could be considered capable. Seventeen classes were in County schools, four in Roman Catholic schools, and nine in Church of England Schools.

2. Year Groups Taught

In the conventional rooms, 12 of the 13 classes were composed entirely of second year junior pupils; the other class, categorized as one with a mixed teaching style, was composed of first and second year juniors. In the open-plan rooms, the four formal classes were composed entirely of second years; three of the mixed classes were entirely second years, four were combination first and second years, and one was a combination second and third year class. The informal classes included one that was entirely composed of second year juniors, a first and second year combination, two second and third year combination classes, and a second through fourth year combination.

3. Teacher Attitudes

The observer's grouping of teachers into those with formal, mixed, and informal teaching styles on the basis of their observed practices was again supported by the teachers' responses to the questionnaires.

Looking first at the Teaching Styles Questionnaire, used in both studies, two factor analyses of variance reveal no significant Building or Building by Style effects (Table 3). The differences among the groups of teachers are accounted for by their teaching styles. 'Teaching Aims' shows a significant difference among the styles at the .05 level. 'Opinions about Education Issues' illustrates a polarization of views ($p< .005$) which is even more pronounced in the teachers' 'Opinions about Teaching Methods' (Formal vs. Informal) ($p< .001$). Not surprisingly,

Table 3: Teacher Attitudes in Study Two

Measures	Adjusted Means					F-ratios			Analysis of Style Effects t-tests (df=24)	
	Style			Building						
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Teaching Styles Questionnaire:										
Teaching Aims	19.5	20.1	22.9	20.9	20.5	0.15	3.79*	2.04	2.58*	1.21
Opinions about Education Issues	17.5	22.0	26.8	22.0	22.5	0.10	8.73***	0.16	4.15****	-0.03
Opinions about Teaching Methods	37.0	53.4	55.5	50.6	48.5	0.54	15.49****	0.40	4.97****	-2.63*
Composite Score	24.0	45.5	55.1	43.5	41.6	0.22	17.64****	0.08	5.79****	-1.51
Walberg and Thomas: Teacher Questionnaire	99.5	110.1	129.6	118.7	105.9	12.91***	21.96****	3.25	6.33****	1.23
Observation-Rating Scale	54.9	104.3	147.0	109.8	96.2	8.20**	109.5****	1.26	14.68****	-0.72

*p< .05, **p< .01, ***p< .005, ****p< .001

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the formal teachers favour formal methods while informal teachers favour informal methods. A total attitude score based on these three sections shows a significant Style effect at the .001 level. (Specific items from the questionnaire are presented in the relevant chapters.)

Since the sections of the Teaching Styles Questionnaire selected for this study were primarily concerned with teacher attitudes, there were no significant Building effects. On the Walberg and Thomas (1971) instruments, however, total scores do reveal significant Building as well as Style effects. Items relate generally to practice with attitudes implied. One possibility is that the open-plan rooms are influencing teacher practice more readily than teacher attitude. Building effects on the individual items from the instruments are presented in the appropriate results chapters.

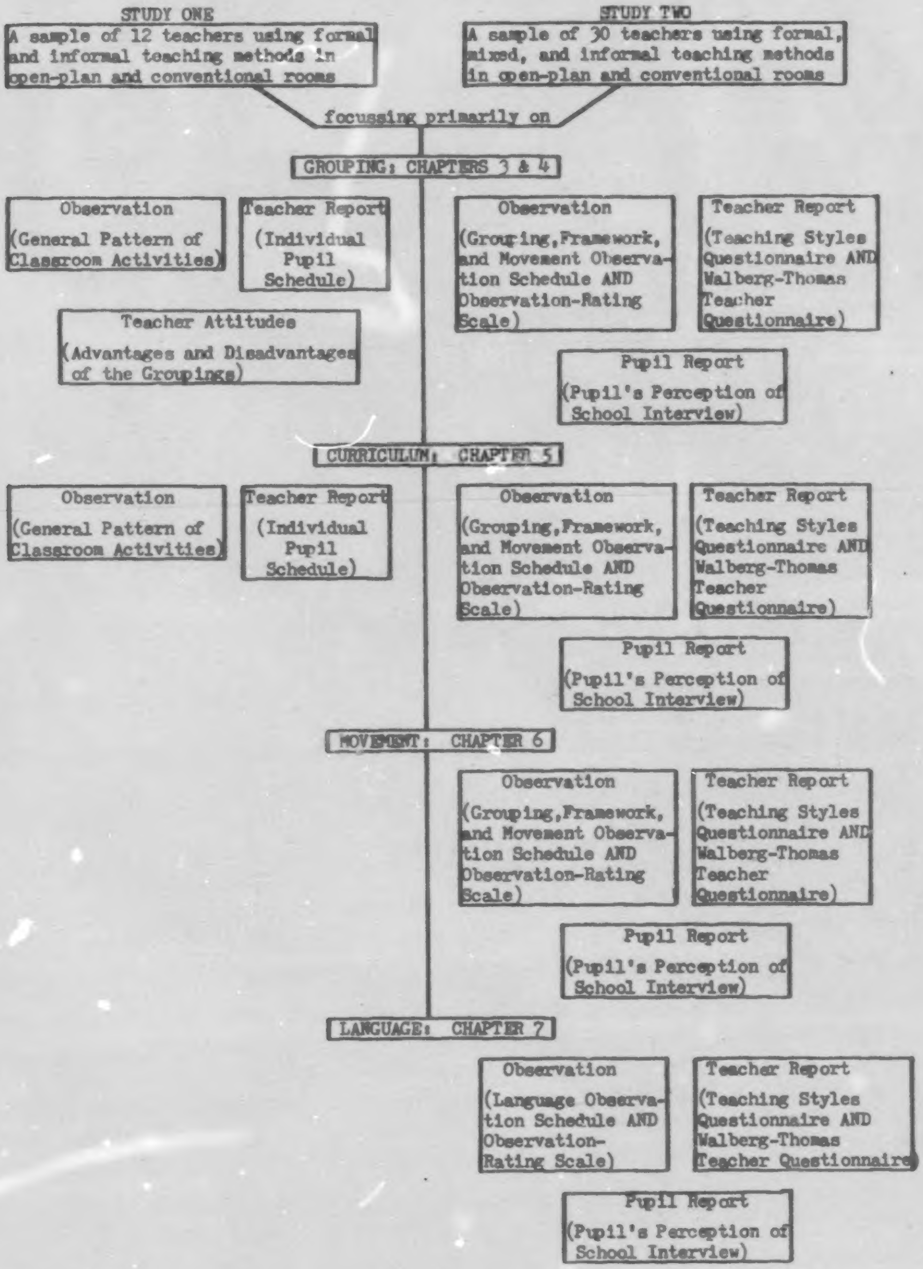
SECTION VII. SUMMARY

Study One instruments were designed to focus primarily on grouping patterns and the curriculum. Twelve teachers and their classes were selected to form an equal cell sample of formal and informal teachers working in open-plan and conventional rooms. The initial observer classification of teachers as formal or informal was validated by the responses on the Teaching Styles Questionnaire.

Study Two instruments continued the emphasis on grouping patterns and the curriculum (though narrowing the consideration) and included classroom language and movement. The sample of 30 teachers maintained the central distinction between formal and informal teachers in open-plan and conventional rooms and also included 13 teachers with mixed styles. Again the observer classification of teachers was validated by their responses to the Teaching Styles Questionnaire. The Walberg and Thomas instruments also showed significant differences among the groups of teachers.

The following chapters organize the results from the two studies in terms of the areas of interest: grouping patterns, curriculum organization and evaluation, movement, and language. Data from each instrument will be included as they are relevant to the specific question under discussion (Figure 1).

Figure 1: Design, Instrumentation, and Presentation of Studies One and Two


STUDY ONE
A sample of 12 teachers using formal and informal teaching methods in open-plan and conventional rooms
STUDY TWO
A sample of 30 teachers using formal, mixed, and informal teaching methods in open-plan and conventional rooms
focussing primarily on
GROUPING: CHAPTERS 3 & 4
Observation (General Pattern of Classroom Activities)
Teacher Report (Individual Pupil Schedule)
Observation (Grouping, Framework, and Movement Observation Schedule AND Observation-Rating Scale)
Teacher Report (Teaching Styles Questionnaire AND Walberg-Thomas Teacher Questionnaire)
Teacher Attitudes (Advantages and Disadvantages of the Groupings)
Pupil Report (Pupil's Perception of School Interview)
CURRICULUM: CHAPTER 5
Observation (General Pattern of Classroom Activities)
Teacher Report (Individual Pupil Schedule)
Observation (Grouping, Framework, and Movement Observation Schedule AND Observation-Rating Scale)
Teacher Report (Teaching Styles Questionnaire AND Walberg-Thomas Teacher Questionnaire)
Pupil Report (Pupil's Perception of School Interview)
MOVEMENT: CHAPTER 6
Observation (Grouping, Framework, and Movement Observation Schedule AND Observation-Rating Scale)
Teacher Report (Teaching Styles Questionnaire AND Walberg-Thomas Teacher Questionnaire)
Pupil Report (Pupil's Perception of School Interview)
LANGUAGE: CHAPTER 7
Observation (Language Observation Schedule AND Observation-Rating Scale)
Teacher Report (Teaching Styles Questionnaire AND Walberg-Thomas Teacher Questionnaire)
Pupil Report (Pupil's Perception of School Interview)

CHAPTER THREE
GROUPING PATTERNS WITHIN THE CLASSROOM: STUDY ONE

SECTION I. INTRODUCTION

We discussed earlier the importance of looking within the classroom for a naturally occurring unit of analysis. Grouping patterns are a useful beginning since they are easily defined and understood. Groups are also crucial because they provide the context within which learning experiences occur. From the viewpoint of pre-service or in-service training, they offer a concrete focal point for the teacher who wishes to explore alternatives.

We began in Study One by asking teachers' opinions and observing a full range of groupings, and then concentrated in Study Two (Chapter Four) on five that are the most frequently used or which distinguish between formal and informal teachers. (See Figure 1, p. 75.)

The ten groups initially considered varied in size and membership. Group size was divided into the individual pupil, the small group composed of 2 to 6 pupils, the medium group composed of 7 to 12 pupils, the large group composed of 13 pupils to the entire class or register group, and finally the category combined classes designating a group composed of more pupils than would normally be a class in that school. Each of these groupings can occur with or without active teacher participation.

SECTION II. THE GROUPINGS AS OBSERVED

A. Observation Schedule Results

Data from the full day of observation in each of the twelve classes in Study One were analysed using a two factor analysis of variance (Building Type by Teaching Style).

Combining all the curriculum areas to obtain the total number of minutes spent in each grouping, the medium group composed of 7 to 12 pupils both with and without teacher participation is so close to nonexistent that it may be omitted from further consideration. It had been included to account primarily for the instances when the teacher might split the class into high, middle, and low ability groupings which would not indicate the informal approach that we anticipated the 'small group' would. Only one teacher made use of this split. It was found, as expected, that the large group without teacher and the combined classes without teacher occurred too infrequently for further consideration. With these four groupings omitted, we are left with six groupings for study:

With Teacher:	Individual Small Group Large Group Combined Classes
Without Teacher:	Individual Small Group .

None of the six distinguish significantly among the four groups of teachers, but two approach statistical significance ($p< .10$) (Table 4). The large group with the teacher was used an average of 115 minutes per day by formal teachers in open-plan rooms, though less than half that (45 minutes) by informal teachers in open-plan rooms. In conventional rooms, both formal and informal teachers used the large group moderately, with an average of 88 and 85 minutes respectively. This difference approaches significance for Teaching Style and for Building by Style interaction ($p< .10$).

A different pattern of use is exemplified by the small group of pupils without the teacher. Informal teachers in conventional rooms used this grouping an average of 60 minutes, followed closely by formal

Table 4: Minutes of Observed Grouping Practices in Study One

	Means						
	Formal		Informal		F-ratios (df=1;8)		
Groupings With Teacher:	Open (N=3)	Conv. (N=3)	Open (N=3)	Conv. (N=3)	B	S	BS
Individual	110.0	85.0	121.7	73.3	0.84	0.00	0.08
Small Group	10.0	18.3	48.3	38.3	0.00	2.33	0.23
Large Group	115.0	88.3	45.0	85.0	0.14	4.21#	3.48#
Combined Classes	18.3	53.3	45.0	38.3	0.35	0.06	0.75
Without Teacher:							
Individual	225.0	101.7	315.0	278.3	1.01	2.81	0.30
Small Group	56.7	20.0	33.3	60.0	0.10	0.28	4.09#

#p< .10

teachers in open-plan rooms, who used it an average of 57 minutes. Dropping nearly by half, informal teachers in open-plan rooms used this grouping an average of only 33 minutes. Formal teachers in conventional rooms used the grouping least, averaging only 20 minutes per day of small group work without the teacher actively participating. This Building by Style interaction approaches statistical significance (p< .10).

B. A School Day

The second method of analysis for the observation schedule data from Study One involved diagramming the pattern of activities during the day of observation for each of the twelve classes. Following are examples of this diagramming selected to illustrate each of the four groups of teachers and to highlight the differences between them.

1. A Formal Approach in a Conventional Room

Morning

The formal teacher in the conventional room (Figure 2) began the morning with most of the class reading silently and individually while she called individuals to her desk to read individually to her and to receive individual instruction from her. The children then had mental arithmetic as a class with the teacher giving problems and calling on individuals to answer them. She then passed out the textbooks and gave the assignments for the three streamed math groups. The children worked individually at the set task until playtime.

After playtime, the children finished off their math work and then seats were rearranged so that everyone could see the television programme comfortably. This programme was an integral part of the fish unit the children had been working on. After the class watched the programme, they discussed it briefly, tying it in to displays around the room; then the teacher distributed to each pair of children a packet of materials designed by the BBC to accompany the series. The children completed some of the word games before dinnertime.

Afternoon

After dinner, the children were asked to write something imaginative to do with fish or water. Though several possible directions were mentioned, the stimulus was general and the children seemed free to follow on from the morning television programme, from any of the previous work, or from their own experience. While they began, the teacher moved from group to group checking that each understood the assignment and had adequate supplies. Each child had an individual dictionary for the spelling words he found difficult. When they had completed the writing, they were to go on to illustrate it using scraps of fabric, sticky paper,

Figure 2: Formal Approaches in a Conventional and an Open-Plan Room

Conventional Room (31 Pupils)		Open-Plan Room (35 Pupils)	
9:10-9:35	Individually Reading to Teacher Individual Reading	9:00-9:25	R.E. Juniors (Headmaster)
9:40-9:55	Mental Maths	9:25-10:30	Numbers
9:55-10:20	3 Streamed Math Groups		
	Playtime		Playtime
10:50-10:55	Finish off Math	11:00-11:30	Handwriting (Headmaster)
10:55-11:35	Social Studies - Television		
11:35-12:00	Social Studies - Follow up in pairs	11:30-12:00	French
	Dinnertime		Dinnertime
1:25-2:00	Individually Reading to Teacher Creative Writing	1:15-1:50	Art
2:00-2:30	Individually Reading to Teacher Creative Writing ---> Illustrate Writing	1:50-2:15	Art Social Studies (Reading) Take down Bulletin Board
	Playtime		Playtime
2:50-3:10	P.E.	2:45-3:05	Music
3:10-3:30	Write notes to parents about Sports Day		
3:30-3:45	Story	3:05-3:20	Word Usage Exercises

crayons, or anything else available in the classroom. While the bulk of the class got on with the writing and illustrating, the teacher again called individual children to her to read. This pattern continued from dinnertime till playtime with interruptions only to provide spelling words or to spot check the work at the tables.

After playtime the children returned outside to run through their part for the coming Sports Day. They then went back into the classroom to write a note to their parents inviting them for the Sports Day. The teacher used the last part of the day to read a story to the class.

2. A Formal Approach in an Open-Plan Room

Morning

Moving now to the formal teacher in the open-plan setting (Figure 2), we find a marked similarity in grouping patterns, with whole class teaching even more pronounced. The children started the day with a brief religious assembly led by the Head Teacher and then went to their base area where the teacher distributed compasses and introduced the concepts circumference, diameter, and radius to the class. The teacher explained from the board while the children worked problems at their seats.

After playtime, the Head Teacher took the class for handwriting practice. Each teacher specified a curriculum area she would like the Head to take, in this instance handwriting. He then taught one lesson each week by way of acquainting himself with the children and providing a planning period for the teacher. The last half hour of the morning, the teacher taught French to the class. (A peripatetic French teacher visits the school, but this class teacher took her own.) The atmosphere was game-like and pleasant; the content was oral vocabulary.

Afternoon

After dinnertime the children returned to the base area where the teacher and some of their classmates had already laid out art materials. The art lesson integrated the work with circles the children had in math during the morning plus the Social Studies unit on Vikings that was introduced the previous day. Each child made a Viking from sticky paper. Squares were measured and cut into circles, cut and folded into cones, and then joined and decorated to make the Viking warrior. Several were used on the mural bulletin board that was taking shape at the side of the room. Instructions were given and all the children began work on the Vikings, but inevitably some finished earlier than others. These children either read from the library collection of books on the Vikings or finished taking down the previous bulletin board.

After playtime the class listened and sang along to a record relating the story of Blackbeard, the bad buccaneer, and then completed word usage exercises relating to the record.

3. An Informal Approach in a Conventional Room

The informal teachers exhibit a different emphasis in grouping patterns because they frequently split the class into groups for separate activities, though they still have times when they talk to or instruct the class as a unit (Figure 3).

The teacher we will use as our example of the informal teacher in the conventional classroom had a group of first and second year juniors, in contrast to the second year junior groups that both the formal teachers had.

Morning

The school day began with the entire school having religious assembly led by the Head Teacher. The children then went to the classroom where five different activities were organized: three structured and two allowing considerable freedom for the individual child. The main part of the teacher's attention was devoted to the two number groups, one working on money problems and one on magic squares. The other structured group was working with reading/writing comprehension cards. Though this was organized as a group, in fact the children did their work individually, resorting to their classmates only when they were having trouble. It should be noted that this sharing of knowledge was regarded as cooperation not as cheating. The child could select the content area of the comprehension card, but felt he should stay within the colour banding that designated his level of progress through the cards.

The other two groups were quite free to select their own specific activity within the framework provided by the teacher. One group was free to read books from the library area and another group was free to do art work; the scope for art work in this class included not only the paint, crayons, pastels, chalk, papier mâché, and sewing which is often found in well-supplied schools, but also a whole range of equipment and fabrics for weaving, their current Social Studies topic. After 40 minutes the children switched groups. The area that had previously been used for art work was cleared and the next group of children decided to play a homemade board number game that involved money calculations. Before playtime, crisps were sold. Those children who bought them tended to return to their work with the crisps.

After playtime the furniture was rearranged so there was a large, clear centre space. A maypole was placed in the middle and then the teacher showed some of the samples of weaving she had brought from her

Figure 3: Informal Approaches in a Conventional and an Open-Plan Room

Conventional Room (34 Pupils)					
9:05-9:25	R.E. Primary (Headmaster)				
9:25-10:05	Reading Library Books	Reading & Writing: Comp. Cards	2 Math Groups	Art	
10:05-10:30	Reading	Reading & Writing	3 Math Groups		
10:30-10:40	Crisp Time Most continue work				
Playtime					
11:00-11:50	Social Studies (Weaving Demonstration Preparing for Outing)				
11:50-12:00	Creative Writing - Social Studies				
Dinnertime					
1:20-2:25	Social Studies Projects:				
	Art	Writing or Typing	Math	Reading	Individual Reading to Teacher
Playtime					
2:55-3:15	Social Studies - Preparation for tomorrow's outing				
3:15-3:45	P.E. - Skill Practice:				
	Small balls	Skittles	Ropes	Swimmers	

Open-Plan Room (23 Pupils)					
9:00-9:15	R.E. Primary (Headmaster)				
9:15-10:05	Reading	Writing	Better English (R & W)	Numbers	Remedial Reading (Withdrawal)
10:05-10:30	Social Studies Discussion	Social Studies Writing	Better English (R & W)	Numbers	Remedial (Different Children)
Playtime					
10:50-11:50	Numbers	'Story'	Art	English	
11:50-12:00	Social Studies (Books Returned/ Comments made)				
Dinnertime					
1:40-2:30	Numbers	2 Art Groups: 2 Teachers Sewing	Painting etc.	English	Social Studies
Playtime					
2:45-3:25	Individually Reading to Teacher	Individual Art (Social Studies related)			
3:30-3:45	Story				

scouting trip to the mill that the children would be visiting that week. After a brief discussion, the maypole was used to show various weaving patterns with different children participating in the weaving while the rest of the class sat round the edges watching the patterns form. After various patterns had been demonstrated, the children moved the furniture back into groups and wrote a brief imaginative piece about Mr. Blackburn's paper textiles.

Afternoon

The afternoon period from dinnertime until playtime was spent on Social Studies project work connected with their forthcoming trip to the mill. During this 65 minutes some children engaged in several different activities relating reading, writing, and art work to the weaving unit. Other children spent the entire time on one activity. The teacher moved from individual to individual, instructing, encouraging, and sometimes suggesting that the child could either help or be helped by one of his classmates. To give an idea of the range of activities engaged in by the pupils, one of the five-minute scans of the class revealed this variety: one child was using a knitting machine, five were doing bobbin knitting, seven were making string pictures, one was doing block string printing, two were ironing crayon patterns on tracing paper over rope and twine, one was making clothes for a papier mâché model, one was weaving on a frame with feathers and other oddments, one was coiling a string around a yogurt container to make a pencil holder, one was making a chart illustrating and distinguishing between string, rope, twine, and wool, two boys had gone to the Head Teacher for reading, one child was typing while his companions at the table were reading or writing, and four children were discussing the weaving display from the mill with the teacher.

After playtime, there was a brief discussion of the practical details for the outing and then the children went outside for physical education with the teacher. One group of children went to the swimmers group with another teacher while the class teacher took the rest of the children for skill practice. They divided themselves into three groups depending on interest in the equipment and then each group was set to work. The teacher moved from group to group instructing and observing the children. Just as the bell rang, she called the children together to make some general comments about the practice. All returned to the classroom and were dismissed.

4. An Informal Approach in an Open-Plan Room

Each of the teachers categorized as informal in the open-plan context was exchanging teaching responsibilities to some extent with at least one other teacher. The frequency of interaction, the subject areas affected, and the structuring of the exchange varied in the three situations. We have selected the most structured to exemplify the approach, not because it is necessarily representative, but because it is easiest to delineate given the brevity of a single day of observation. In this primary school the infant teachers acted as one team and the junior teachers combined to form a second team. Each teacher had an area of specialization, though there was a tendency for some of the teachers to change areas to maintain a fresh perspective and to remain capable as a general teacher. At the time of the observation, one teacher specialized in each of Music, Math, Art, and Social Studies. Each teacher had his own register group for approximately half of the day during which time reading, writing, and discussion were stressed. Each pupil was scheduled for a certain amount of time in each subject area, but rescheduling was continuous as it became apparent that the child had finished early or was likely to need another period to finish a particular piece of work. It would have been physically impossible to follow visually each child in the register group; they split, regrouped, and united again several different times. Both the pupils and the teachers knew where each child was to be; the atmosphere was businesslike.

Morning

School began with an assembly led by the Head Teacher, then children returned to their base areas. The books were laid out and waiting at their places. Some were reading, some writing, a few did a combination of both in their Better English books, some did number work, and one child was withdrawn for remedial work. During this time, the teacher circulated, checking, instructing, and questioning. After 40 minutes there was a regrouping with 15 children joining the teacher for a Social Studies discussion while the other children continued with Numbers or Better English or did some Social Studies writing. The child who had been out of the base area for remedial work returned and two other children left. From the end of assembly, then, until playtime the children were with their base teacher.

After playtime the children went in one of four directions under the supervision of one of the three teachers: to Numbers, to 'Story', to Art, or to English. Within each of these areas several different types of activities were occurring. In the Maths area the variety extended to water capacity problems, work with shapes involving sticky paper, compasses, and rulers, various sets of work cards, and the Beta number books. 'Story' was the area of least supervision and included any type of writing that the teacher or the child thought appropriate. The art room was well supplied. The teacher provided stimuli related to the Social Studies unit that was common to the junior team. Large art displays were prevalent throughout the building. English was again a combination of activities; some children were writing myths stimulated by the Social Studies work, some were working with SRA kits, some were following work cards and others were doing work set either by their base teacher or the teacher specializing in English/Social Studies. The children returned to their base areas for the last ten minutes of the morning. The second year junior teacher returned and commented on their Social Studies booklets which he had read the previous evening.

Afternoon

After dinner, the children were again in the team situation, but most children switched activities, so that a child who had Math in the morning might go on to Art in the afternoon. The options available during the first section of the afternoon included Math, English, Social Studies, and two groups of Art led by different teachers.

After playtime the children returned to their base areas. The teacher gave an art stimulus related to their Social Studies unit and then while the children got on with the art work, he heard individual children read. The children tidied away and the last 15 minutes all the children gathered round the teacher who read from a continuing class story.

In contrasting the class profiles, three points seemed especially striking. First, for each class there were periods when the entire class was together. Second, frequently in the formal classes but less in the informal classes, when the class was together all the children were engaged in an identical task. And third, often in the informal classrooms but seldom in the formal rooms, three or more different activities were taking place simultaneously.

C. Quantifying the Differences

Some of the differences in patterns of classroom activity which are evident in Figures 2 and 3 were also quantified. Lessons with the 'class together', and even more so with the entire class engaged in a 'single task' seem useful indices of formality. Sessions when 'three or more simultaneous activities' occur point to informality. Separate analyses of the patterns of activities were carried out for the 'Core' subjects combined (Writing, Reading, Numbers, Science, and Social Studies), for 'Other' subjects combined (Religious Education, Physical Education, Music, Art, Drama, and Foreign Language), and for the total curriculum combined (Table 5).

1. Class Together

There were no statistically significant differences in the amount of time spent by the 'class together' when calculated for the 'Core' subjects combined or for the 'Other' subjects combined. It should be noted, however, that the percentage of time spent 'class together' for the 'Core' subjects combined ranged from a low of 11 percent for the informal teachers in the open-plan rooms to a high of 35 percent for the formal teachers in the conventional classrooms. For the 'Other' subjects combined, though there were fewer percentage points distinguishing the groups, the formal teachers used the 'class together' grouping approximately twice as often (14 percent) as the informal teachers (7 percent). It is at least possible that these discrepancies would have a practical effect on the quality of interaction for the pupil. When the total curriculum combined was considered, the percentage of time spent 'class together' was significantly greater ($p < .05$) in the formal than in the informal classes.

Table 5: The Occurrence of 'Class Together', 'Single Task', and 'Three or More Simultaneous Activities' in Study One

	Mean Percent of Time						
	Formal		Informal				
Measures	Open (N=3)	Conv. (N=3)	Open (N=3)	Conv. (N=3)	F-ratios (df=1;8) B	S	BS
Core Subjects:							
Class Together	26.6	34.7	11.1	23.4	1.48	2.56	0.07
Single Task	24.8	5.9	0.0	7.5	0.38	1.58	2.05
≥ 3 Simul. Act.	20.7	29.7	54.6	51.9	0.04	3.46#	0.15
Other Subjects:							
Class Together	14.9	12.5	7.5	7.3	0.03	0.77	0.02
Single Task	8.1	0.0	0.0	0.0	3.96#	3.96#	3.96#
≥ 3 Simul. Act.	3.8	13.2	4.1	12.7	3.69#	0.00	0.01
Curriculum Combined:							
Class Together	33.3	38.2	17.6	24.5	0.95	5.95*	0.03
Single Task	23.7	5.3	0.0	5.5	0.73	2.44	2.51
≥ 3 Simul. Act.	16.6	30.8	47.4	50.2	0.80	6.90*	0.36

Core Subjects=Writing, Reading, Numbers, Science, and Social Studies
Other Subjects=Religious Education, Physical Education, Music, Art, Drama, and Foreign Language

#$p < .10$, *$p < .05$

2. Single Task

The 'single task' category did not achieve statistical significance for 'Core', 'Other', or total curriculum. It may be educationally significant though that for the total curriculum combined the percentage of time spent with the entire class engaged in a single task ranged from a high of 24 percent of the time by formal teachers in open-plan classrooms to non-occurrence for the informal teachers in open-plan rooms. Two of the three formal teachers in open-plan rooms used this method of teaching a greater percentage of the time than did any of the other teachers in any of the other cells (23 percent and 48 percent).

3. Three or More Simultaneous Activities

The category 'three or more different simultaneous activities' seems to distinguish best between the groups of teachers. For the 'Core' subjects combined the difference between the formal and the informal approaches significance ($p< .10$), with the informal teachers using this teaching approach over half the time while the formal teachers selected it between 20 and 30 percent of the time. This was a less relevant category for the 'Other' subjects combined, though it approaches statistical significance ($p< .10$) for building type; those in the conventional rooms used this more frequently (13 percent) than those in the open-plan rooms (4 percent). When the total curriculum is combined we find a significant difference ($p< .05$) between formal and informal teachers with the informal teachers maintaining three or more simultaneous activities an average of 48.8 percent of the time while the formal teachers used this approach an average of 23.7 percent of the time.

4. Uniformity Ratio

Exploring further the implications of the occurrence of three or more simultaneous activities we calculated the ratio of periods during the day to the different activities occurring. Considering first the minimum number of activities in which each pupil was required to participate during the day of observation, we find a range of 9 to 13 activities between the twelve classes, with each of the four groups of teachers averaging between 10 and 11 activities (Table 6). When we look at the total number of activities offered during that day, however, we find among the 12 classes a range of from 10 to 29 activities, with an average of 16.8 for the formal teachers and of

Table 6: The Uniformity Ratio for Study One

	Minimum No. of Activ. per Child	Total Activ. Offered	Uniformity Ratio
Formal Teachers/ Open-plan Rooms:			
Teacher 1	9	18	50.0%
Teacher 2	8	10	80.0
Teacher 3	13	19	68.4
Mean	10.0	15.7	66.1%
Formal Teachers/ Conventional Rooms:			
Teacher 1	12	22	54.5%
Teacher 2	12	19	63.2
Teacher 3	9	13	69.2
Mean	11.0	18.0	62.3%
Informal Teachers/ Open-plan Rooms:			
Teacher 1	8	24	33.3%
Teacher 2	13	28	46.4
Teacher 3	10	14	71.4
Mean	10.3	22.0	50.4%
Informal Teachers/ Conventional Rooms:			
Teacher 1	8	23	34.8%
Teacher 2	13	29	44.8
Teacher 3	11	25	44.0
Mean	10.7	25.7	41.2%

Mann-Whitney U Test: Formal v. Informal U=5, One-tailed p= .021

23.8 for the informal teachers. The uniformity ratio, calculated as the ratio of required periods to offered activities, varies from 50 to 80 percent for the formal teachers; it varies from 33.3 to 46.4 percent for the informal teachers, with the exception of one informal teacher whose ratio of required to offered activities was 71.4 percent.[1] As tested by the Mann-Whitney U (Siegel, 1956, pp. 116-126), the uniformity ratio was significantly different between the formal and informal teachers ($U=5$, $p=.02$), with the informal teachers providing for more activities.

SECTION III. THE GROUPINGS AS REPORTED: INDIVIDUAL PUPIL SCHEDULE

A. Reliability

The activities of two boys and two girls from each class were recorded over four consecutive schools days, one child per day. The Individual Pupil Schedule (Appendix I), used by the teacher, surprisingly needed no revision after the pilot work. The one problem area related to the teachers' understanding of the groupings 'without teacher'. This was best clarified in the initial verbal explanation.

The afternoon of the day of observation was scored for reliability. There was 85.6 percent agreement between observer and teacher in rating the groupings experienced by the individual child during the afternoon of observation (Holsti, 1969).

B. Style and Building Effects

Results from the four pupils were combined to provide a four day sample; two factor analyses of variance (Building by Style) were carried out on the schedules.

The most widespread grouping for all four sets of classes was the pupil working individually without the teachers (Table 7). This occurred an average of 10 times for formal teachers working in open-plan rooms, over 13 times for informal teachers in open-plan rooms, an average of just over 16 times for formal teachers in conventional rooms, and over 17 times for informal teachers in conventional rooms. Though a general practice in all rooms, there was a statisticrlly significant difference (p< .05) between those in open-plan and conventional rooms, with those in open-plan rooms averaging 11.7 occurrences while those in conventional rooms averaged 16.8 occurrences.

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[1] It should be remembered that the characteristics of informal, or 'open' education are diverse. The plurality of opportunities is one of these characteristics. While it seems important, considered singly it is neither a necessary nor a sufficient indicator of informality.

Table 7: Use of the Groupings as Reported for a Four-Day Period in Study One

Grouping	Mean Frequency of Occurrence				F-ratios (df=1;8)		
	Formal		Informal				
	Open (N=3)	Conv. (N=3)	Open (N=3)	Conv. (N=3)	B	S	BS
With Teacher:							
Individual	5.0	3.7	8.3	6.3	1.08	3.48#	0.04
Small Group	1.3	0.7	1.0	2.3	0.44	1.78	4.00#
Medium Group	0.7	0.3	1.0	0.7	0.27	0.27	0.00
Large Group	8.7	9.0	7.7	11.0	1.36	0.10	0.91
Combined Classes	5.3	5.0	6.3	3.7	0.69	0.01	0.42
Without Teacher:							
Individual	10.0	16.3	13.3	17.3	6.28*	1.10	0.32
Small Group	5.3	2.0	2.3	2.7	0.90	0.54	1.34
Medium Group	0.7	1.7	0.7	0.7	0.56	0.56	0.56
Large Group	0.3	0.0	0.0	0.3	0.00	0.00	0.33
Combined Classes	0.0	0.0	0.0	0.0	----	----	----

#p< .10, *p< .05

The next most common grouping for all four sets of classes was the large group with the teacher. This occurred an average of approximately nine times for formal teachers, nearly eight times for informal teachers in open-plan rooms, and eleven times for informal teachers in conventional rooms.

Their use of other types of groupings discriminated between the sets of teachers. The next most frequent grouping in the classes of informal teachers was the individual pupil with the teacher. This is a difference which tends toward significance ($p< .10$) between the formal and informal teachers with the formal teachers averaging 4.3 occurrences while the informal teachers averaged 7.3 occurrences.

For formal teachers, the third most common grouping was combined classes with the teacher(s), with an average of approximately five times during the four days. Informal teachers varied in their use of this grouping, with those in open-plan rooms using it most at an average of over six times while those in conventional rooms used it least averaging less than four times each.

Less common though still prevalent enough for consideration was the small group composed of two to six pupils without the teacher. This was used an average of 3.7 times by formal teachers and 2.5 times by informal teachers. The small group with the teacher was far less numerous than anticipated, but was most likely in informal, conventional classrooms.

These teacher reports support the observation data suggesting that the medium sized group of seven to twelve pupils occurs rarely.

C. Morning/Afternoon Differences

Three factor analyses of variance (Building by Style by Time of Day) indicated differences in the way groups are used in the morning and in the afternoon (Table 8). In these analyses, content areas were considered under four broad groupings: Writing, Reading, and Numbers; Social Studies and Science; Physical Education and Religious Education; Music, Art, Drama, and Foreign Language.

Teachers worked individually with pupils primarily for Writing, Reading, and Numbers and significantly more in the morning than in the afternoon ($p < .05$).

Though they seldom used the small group, when they did use it for Writing, Reading, or Number instruction, it was likely to be in the morning ($p < .10$).

Combined classes calculated for the total curriculum were also used more frequently in the morning than in the afternoon ($F=9.67$, $df=1;8$, $p < .05$). Religious education is the most common reason for combined classes and most Head Teachers prefer to begin the day with Assembly; this accounted for 25 of the 55 instances of combined classes.

Pupils were most likely to work on their own for Writing, Reading, and Numbers in the morning ($p < .001$). This averaged nearly eight times in the morning compared with just over twice in the afternoon. Children in informal classes were significantly more likely to work individually on their own for Social Studies or Science than were children in formal classes ($p < .05$). When looking at the curriculum as a whole, pupils were significantly more apt to work individually without the teacher in the morning than in the afternoon ($F=26.38$, $df=1;8$, $p < .01$). This averaged 9.3 occurrences in the morning contrasted with 5.2 occurrences in the afternoon.

Working in a small group without the teacher for Writing, Reading, and Numbers was significantly more common in the morning than in the afternoon ($p < .05$), though for Social Studies or Science it tended

Table 8: Reported Use of Groupings in Study One Partitioned by Subject Area and Time of Day

Groupings	Mean Frequency of Occurrence						
	Morning		Afternoon				
	Formal (N=6)	Informal (N=6)	Formal (N=6)	Informal (N=6)	F-ratios (df=1;8)		
					S	D	SD
With Teacher/ Individual:							
W,R,N	2.3	3.8	1.0	1.2	1.27	7.48*	0.83
S.S.,Sci	0.0	0.7	0.3	0.2	0.75	0.17	4.17#
P.E.,R.E.	0.0	0.2	0.0	0.2	1.00	0.00	0.00
M,A,D,F.L.	0.0	0.2	0.7	1.0	1.13	6.75*	0.08
With Teacher/ Small Group:							
W,R,N	0.3	0.7	0.0	0.0	0.57	5.14#	0.57
S.S.,Sci	0.2	0.0	0.2	0.2	0.20	1.00	1.00
P.E.,R.E.	---	---	---	---	----	----	----
M,A,D,F.L.	0.0	0.3	0.3	0.3	0.33	0.84	0.84
With Teacher/ Large Group:							
W,R,N	1.8	1.7	2.2	1.7	0.18	0.07	0.07
S.S.,Sci	1.2	0.7	0.3	1.3	0.35	0.08	6.72*
P.E.,R.E.	0.2	0.8	1.3	1.5	0.54	2.88	0.21
M,A,D,F.L.	0.5	0.7	1.3	1.0	0.04	1.36	0.25
Without Teacher/ Individual							
W,R,N	8.3	7.5	2.5	1.8	0.81	64.34****	0.01
S.S.,Sci	0.2	1.2	0.3	1.5	10.56*	0.45	0.05
P.E.,R.E.	---	---	---	---	----	----	----
M,A,D,F.L.	0.3	1.0	1.7	2.2	0.71	4.41#	0.02
Without Teacher/ Small Group:							
W,R,N	0.3	0.8	0.0	0.3	0.93	8.21*	0.33
S.S.,Sci	0.8	0.2	1.5	0.5	3.72	3.96#	0.44
P.E.,R.E.	---	---	---	---	----	----	----
M,A,D,F.L.	0.0	0.2	1.0	0.5	0.31	4.92#	1.23

W,R,N=Writing, Reading, and Numbers
S.S.,Sci=Social Studies and Science
P.E.,R.E.=Physical Education and Religious Education
M,A,D,F.L.=Music, Art, Drama, and Foreign Language

#p< .10, *p< .05, **p< .01, ***p< .005, ****p< .001

($p < .10$) to be more common in the afternoon as well as more usual for the formal than the informal classes ($p < .10$). For Social Studies and Science there was a significant Building by Time of Day interaction effect ($F=7.04$, $df=1;8$, $p < .05$); in open-plan and conventional rooms the small group without the teacher was used equally in the morning, but in open-plan rooms it was used over three times as much as in conventional rooms in the afternoon.

D. Summary

The Individual Pupil Schedule is a reliable and inexpensive measure of the groups and subject areas pupils engage in over the school day.

The most widespread grouping reported for all four sets of classes was the pupil working individually without the teacher. The next most common grouping for all four sets of classes was the large group with the teacher. Their use of other types of groupings discriminated between the sets of teachers. For the informal teachers, the third most frequent grouping was instructing individual pupils. For the formal teachers, the third most common grouping was combined classes with the teacher(s). The small group with the teacher was far less numerous than anticipated, but was most likely in informal, conventional rooms. The medium sized group of seven to twelve was rarely reported.

Academic work accented by Assembly dominates the morning; Social Studies and the expressive subjects consume the afternoon.

SECTION IV. TEACHER ATTITUDES TOWARD THE GROUPINGS

Teachers' opinions about the advantages and disadvantages of the various groupings were relatively homogeneous; they also supported our decision to omit some of the groupings from further consideration.

Content analysis of the questionnaires (Appendix I) from the twelve teachers delineated areas of general concern. Four major areas were clear:

Pedagogy	(i.e., methods of instruction, diagnosis of individual difficulties, and specific curricular concerns)
Management	(i.e., staffing, grouping, equipment, and usually learning pace[1])
Discipline	(exemplified by concern over restless, noisy, or disruptive pupils)
Social Development	(recurring themes included leadership, dominance, copying, sharing and cooperation)

A fifth area, pupil affect, was mentioned only once. The format of the questionnaire did not solicit a response in any particular domain, but the affective is especially noteworthy by its absence since it is so heavily stressed by those writing about informal education (i.e., Featherstone, 1967b; Barth, 1970; Stanley and Stanley, 1970). Yet in our sample it was a formal teacher, albeit working in an open-plan room, who wrote, "Children enjoy working with a partner or in small groups." None of the other teachers referred to the pupils' attitudes.

A. Groupings with the Teacher

In general, concerns with Pedagogy and Management dominated the teacher's responses to the various grouping patterns when she is present (Table 9). For individual instruction, Pedagogical concerns were considered the dominant advantage with the diagnosis and remediation of individual difficulties a recurrent theme; scheduling and engaging other pupils made Management the major disadvantage. For small group and medium group instruction, Pedagogy again dominated the advantages reported, but the value placed on grouping children of similar ability or with common difficulties gave Management some emphasis also. The Management problems entailed in organizing the rest of the class dominated the disadvantages listed. For large group instruction, Pedagogy and Management still dominated the advantages (though naturally the content of the responses was notably different, i.e. stimulating class projects and the efficient use of time); the disadvantages became a mixture of Management and Pedagogy, stressing the difficulty of constructively engaging over thirty children of diverse abilities and interests. The combined classes grouping elicited considerable variety in response: five advantages were concerned with Management, four with Pedagogy and three with Social Development. The disadvantages were equally diverse with Pedagogy, Management, and Discipline receiving approximately equal emphasis.

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[1] When professional judgment is implied, pace of learning would be categorized under Pedagogy, but since most of the teachers refer to the organizational problems involved in providing the optimal individual or small group learning rate, it is generally categorized as Management.

B. Groupings without the Teacher

For the groupings without the teacher actively participating, the responses shifted to a prevailing Social focus, though Pedagogy and Management were still influential. Since the individual pupil working on his own was the most frequent grouping reported by each of the four sets of teachers (Table 7, above), it is hardly surprising that the response was quite fully developed. Seven of the advantages listed related to the individual's Social Development, six to Pedagogy, and

Table 9: Teacher Reports of Advantages and Disadvantages of the Groupings in Study One

Grouping	Advantages P	Advantages M	Advantages D	Advantages S	Disadvantages P	Disadvantages M	Disadvantages D	Disadvantages S
With Teacher:								
Individual	10	0	0	4	0	8	2	0
Small Group	11	4	0	2	0	6	1	2
Medium Group	7	4	0	1	0	8	1	1
Large Group	7	4	0	1	3	5	2	1
Comb'd Classes	4	5	0	3	3	3	3	1
Total	39	17	0	11	6	30	9	5
Without Teacher:								
Individual	6	5	0	7	7	2	2	0
Small Group	7	2	0	8	0	4	0	5
Medium Group	1	3	0	6	0	6	1	6
Large Group	2	1	0	5	0	9	0	2
Comb'd Classes	2	0	0	3	0	5	2	1
Total	18	11	0	29	7	26	5	14

Number of Mentions

P=Pedagogy
M=Management
D=Discipline
S=Social Development

five to Management. Seven disadvantages referred to Pedagogical concerns for the less able while two referred to Discipline and two to Management. The advantages of small and medium groups were dominated by the Social benefits of sharing and of developing leadership potential, and the Pedagogical advantages of peer discussion and creative activity, with the Managerial advantage of sharing equipment mentioned. The small group without the teacher present was the only category which elicited a response concerned with pupil affect. The social disadvantages were an inversion of the advantages: the 'leader' who becomes too domineering and the 'sharing' that becomes copying. Management problems were also noted with frequent references to 'wasted time'. The fact that large groups (composed of 13 pupils to the entire class) and combined classes without the teacher were rarely reported in practice is mirrored in the teacher attitudes. For both large groups and combined classes without the teacher, over half the sample, including all three informal teachers in conventional rooms, either left the space for advantages blank or commented negatively. The development of natural leaders was asserted as a Social advantage while two teachers (one formal and one informal) suggested Pedagogical advantages: one favoured pupil-led assemblies for giving the "children a sense of responsibility and 'togetherness' " while the other explained, "Project work for example needs almost complete freedom--very little guidance from teacher." The obvious disadvantage was Management.

C. Number of Responses per Teacher

There was no discernable pattern to the number of different advantages and disadvantages reported by each group of teachers beyond the generalization that those groupings not observed in practice were least elaborated. When the total number of expressions was averaged across teachers within cells, the formal teachers in conventional rooms had an average of 10.0, the lowest obtained for the four groups. The other three groups of teachers had roughly comparable averages of 13.3, 14.3, and 14.6.

SECTION V. CONCLUSIONS

It is clear from analysis of observed practices, reported practices, and teachers' attitudes from Study One that six of the groupings warrant further investigation. These six groupings are:

With Teacher:	Individual Small Group Large Group Combined Classes
Without Teacher:	Individual Small Group.

The quantification of differences using the categories 'three or more different simultaneous activities', 'uniformity ratio', and 'single task' also seems important. The first two of these categories reached statistical significance even with the small sample of Study One; the third category, 'single task', did not reach statistical significance, but its range from non-occurrence for informal teachers in open-plan rooms to its use 24 percent of the time by formal teachers in open-plan rooms indicates that further consideration, especially with a larger sample, may prove useful.

We turn now to the consideration of grouping in Study Two.

CHAPTER FOUR

GROUPING PATTERNS WITHIN THE CLASSROOM: STUDY TWO

SECTION I. INTRODUCTION

The sample for Study Two was different, larger, and included teachers with mixed styles. Our focus narrowed from ten groupings to six, and from the entire curriculum to Reading and the academic subjects in the morning and to Art and topic work in the afternoon.

We begin with a consideration of the groupings as observed in the thirty classes and turn then to the teacher questionnaires and the pupil interviews for supporting data. (See Figure 1, p. 75.)

SECTION II. THE GROUPINGS AS OBSERVED

A. Combined Classes

Data were analysed using two factor analyses of variance (Building by Style) for the 60 minute morning observation period, the 40 minute afternoon period, and for the total 100 minutes of observation in each class using the Grouping, Framework, and Movement Observation Schedule (Appendix II).

Though the grouping type combined classes with the teacher was included in the observation schedule for Study Two, it was clear from the initial analysis that this grouping had not occurred during the observation periods, though in some instances it had occurred during the day. Classes were most frequently combined for Assembly, Physical Education, Music, or television. Study One led us to conclude that these activities were largely influenced by school policy and did not clearly distinguish formal and informal practices in the way that Reading and Art did distinguish them. (Further comments about differences in instruction in Reading and Art are included in Chapter Five.)

Consequently, though 'Combined Classes/With Teacher' does appear on the Grouping, Framework, and Movement Observation Schedule for Study Two, it will not figure in either the discussion or the tables.

B. Pupils Working Individually

Supporting both the observed and the teacher-reported use of groupings in Study One, both in the morning and in the afternoon, the individual pupil working without active teacher participation was the most common grouping for each set of teachers in Study Two. There is a linear effect ($p < .05$) for Style, reflecting a higher occurrence in the informal classroom during the morning and for the day as a whole (Table 10).

The individual pupil working with the teacher was overall the second most frequent grouping during the morning. The average number of minutes ranged from 30.4 to 46.3 out of 60 minutes. During the afternoon, individual instruction was again the second most common grouping, though the average number of minutes spent in it diminishes with a range from 17.5 to 24.4 out of 40 minutes. There are no significant Building or Style effects.

Queuing

The individual pupil working without the teacher was the most common learning situation for all groups of teachers in Study One and in Study Two. This, combined with other accounts of classroom practices (Jackson, 1968), led to the expectation that a major implication of individual work is queuing, waiting in turn for the teacher's attention.

Queuing occurred an average of 21 to 25 minutes during the 60 minute morning observation period in the conventional rooms.

Table 10: Minutes of Observed Grouping Practices in Study Two (Part 1)

	Adjusted Means					F-ratios			Analysis of Style Effects t-tests (df=24)	
	Style			Building						
GROUPINGS Morning	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
With Teacher:										
Individual	35.6	40.0	37.4	37.9	38.3	0.01	0.28	2.09	0.41	-0.45
Small Group	4.2	6.2	14.7	11.3	4.2	5.12*	4.00*	3.75*	2.43*	0.96
Large Group	16.7	9.7	2.8	8.4	10.9	0.76	6.78***	1.79	-3.71****	-0.28
Without Teacher:										
Individual	44.1	48.6	56.7	52.3	46.7	1.64	2.54	2.76	2.28*	0.79
Small Group	0.9	20.1	39.0	26.6	13.0	3.62	8.24***	0.88	3.98****	-0.05
(Minutes of Observation = 60)										
Afternoon										
With Teacher:										
Individual	20.0	22.3	20.8	20.9	21.6	0.03	0.13	0.86	0.21	-0.29
Small Group	0.1	4.9	9.8	5.9	4.0	0.78	5.67**	6.11**	3.14***	-0.47
Large Group	16.3	10.7	7.2	11.6	10.6	0.06	1.36	0.95	-1.55	0.35
Without Teacher:										
Individual	26.8	32.0	32.8	30.4	31.4	0.05	0.65	1.32	0.96	-0.53
Small Group	9.0	9.0	28.4	16.6	12.5	0.46	4.52*	0.75	2.38*	1.48
(Minutes of Observation = 40)										

*p< .05, **p< .01, ***p< .005, ****p< .001

Table 10: Minutes of Observed Grouping Practices in Study Two (Part 2)

GROUPINGS	Adjusted Means					F-ratios			Analysis of Style Effects	
	Style			Building					t-tests (df=24)	
Total[1]	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
With Teacher:										
Individual	55.6	62.4	58.2	58.8	59.9	0.03	0.41	2.42	0.45	-0.53
Small Group	4.3	11.1	24.5	17.2	8.2	7.67**	6.97***	5.64**	3.52****	-0.20
Large Group	33.0	20.5	10.0	20.0	21.5	0.07	5.17**	1.03	-3.17***	0.12
Without Teacher:										
Individual	70.9	80.5	89.5	82.7	78.0	0.63	2.90	2.36	2.41*	0.20
Small Group	9.9	29.1	67.4	43.2	25.5	3.39	11.11****	1.45	4.45****	0.88

(Minutes of Observation = 100)

[1] In this and other tables which include both totals and component scores, the component scores will not always add exactly to the tabled total. Such discrepancies are the result of rounding to one decimal place in constructing the tables, and are never greater than 0.1 .

*p< .05, **p< .01, ***p< .005, ****p< .001

In the open-plan rooms, it occurred an average of 17.5 minutes in formal classes, 12.5 minutes in mixed style classes, and only 4 minutes in informal classes. These differences are statistically significant for Building ($p< .05$), but not for Style or for Building by Style interactions. For those more concerned about the delay that queuing implies (Jackson, 1968) than interested in exploring the language possibilities it may provide, the informal, open-plan class does minimize queuing. There were no statistically significant differences during the afternoon: queuing did not occur at all in the informal, open-plan classes and averaged a high of 10 minutes out of the 40 minute afternoon observation period for formal, open-plan classes.

C. Small Groups[1]

The use of small groups (composed of 2 to 6 pupils) either with or without the teacher shows significant Style effects in both the morning and the afternoon. In general, both of these groupings were used more frequently by the informal than by the formal teachers (Table 10). In the morning, for example, the small group without the teacher was not used at all by the formal teachers in the sample, but was used an average of 50 and 25 minutes out of the 60 observed by the informal teachers in open-plan and conventional rooms, respectively. For the small group working with the teacher, however, the pattern is complicated by a Building by Style interaction in both the morning and the afternoon. Though the teachers in open-plan rooms showed an increase in the use of this grouping from formal to informal, the teachers in conventional rooms displayed a more erratic pattern: the formal teachers averaged 6.3 minutes, dropping to an average of 2.0 minutes for those with mixed styles, and increasing to 5.0 minutes for the informal. The afternoon pattern similarly showed an increase in use from formal to informal in open-plan rooms, and an erratic pattern in conventional rooms: 0.0, 8.0, and 2.5 minutes, respectively, for formal, mixed, and informal teachers. The effect of the open-plan instead of a conventional room seems to be to increase the use of small groups for the informal and mixed style teachers (both of whom make at least moderate use of these groupings), and to decrease the use of small groups by formal teachers (who in any case use these groupings very little).

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[1] Unless otherwise specified, all references to 'small group' are based on data derived by combining the organization and the pupil-planning small group. In our sample the organizational grouping did occur without the pupil-planning small group, but teachers who used pupil-planning small groups were also making use of other small groups that we considered organizational. Intuitively this makes sense, though other samples may vary. Data for pupil-planning small groups separated from the composite are presented later in this section.

1. Seating Arrangements

The small group can occur for at least three reasons: because furniture determines or facilitates its use, for organizational convenience, or to provide pupils with opportunities to work as a unit.

Our sample was not as varied as might be desirable for discussing furniture: all 17 open-plan rooms had tables; 5 of the 13 conventional rooms had tables with the remaining 8 equipped with double desks with unattached chairs. Seven of these 8 teachers had arranged the double desks into tables that could accommodate from 4 to 8 children. The other teacher had the double desks arranged in rows facing the front of the room and the blackboard.

Tables need not imply informal teaching! The diagram of a classroom layout in Figure 4 illustrates how the formal teacher in the conventional room can effectively arrange pupils at tables so that class teaching is still viable.

2. Pupil Planning and Problem-Solving

Looking at the function of the small group, we distinguished between the small group designed to meet organizational needs (e.g., sharing of books and equipment) and the small group that was intended actually to work as a unit (e.g., planning together or working on a problem together). None of the formal teachers provided opportunities for pupils to work in planning, problem-solving groups during either the morning or the afternoon (Table 11). Combining

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Figure 4: A Formal Classroom Seated at Tables

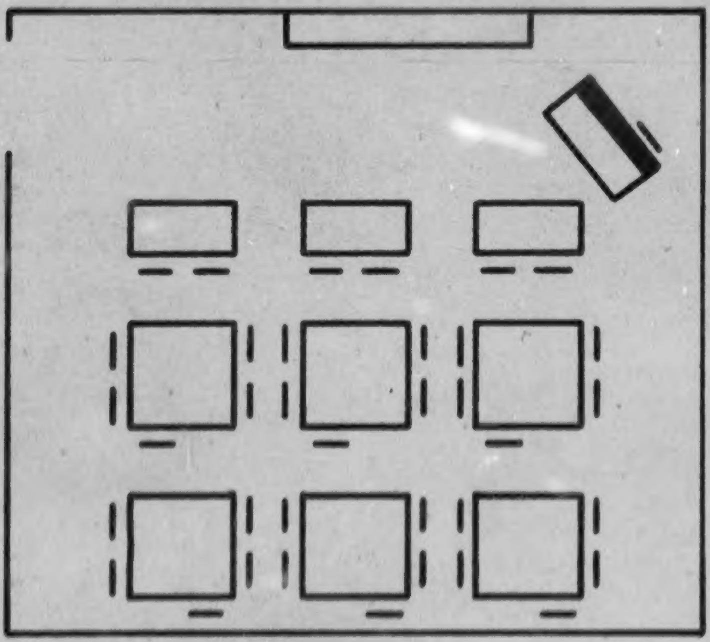

Table 11: Teachers' Use of Small Groups for Pupil Planning and Problem-Solving

	Percent (Adjusted)						
	Style			Building		Chi-Square	
Grouping	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
With Teacher:							
Morning	0.0	0.0	22.2	6.0	7.5	0.33	4.99
Afternoon	0.0	0.0	11.3	6.0	0.0	0.01	2.46
Used at all	0.0	0.0	33.5	12.0	7.5	0.04	7.82*
Without Teacher:							
Morning	0.0	17.3	78.3	30.0	32.3	0.07	14.15****
Afternoon	0.0	15.8	89.2	35.4	31.2	0.02	18.37****
Used at all	0.0	24.4	89.2	35.4	39.8	0.02	16.03****

*p< .05, **p< .01, ***p< .005, ****p< .001

morning and afternoon, 24 percent of the teachers of mixed styles provided opportunities for pupils to work in a small group, without the teacher, planning or producing something jointly. The informal teachers provided considerably more of this type of experience, including occasions when the teacher worked with the small group to guide their efforts without imposing her own opinions; in other words, focussing primarily on group process rather than on the specific product. Combining morning and afternoon, 33.5 percent of the informal teachers worked with groups that were either planning or producing jointly ($p < .05$). Some 78 percent of the informal teachers structured a morning that contained small groups of 2 to 6 pupils working together without the teacher's active participation ($p < .001$); in 89 percent of the informal classrooms this grouping occurred during the afternoon ($p < .001$). (The single informal teacher not including this grouping preferred a highly individualized programme.)

D. Large Group Instruction

Large group instruction was the third most frequent morning grouping for the formal teachers, averaging 15 or more minutes out of 60 for both samples (Table 10). It was the least frequent of the five groupings for the informal teachers, who used it an average of less than 3 minutes (linear Style effect, $p < .001$). In the afternoon, the pattern for active teacher participation with a large group does not reach statistical significance, though again it was used most frequently by the formal teachers and least frequently by the informal teachers. Combining scores for morning and afternoon yields a linear effect for Style significant at the .005 level. For the formal teacher, the teacher working with the large group is a major grouping; for the informal teacher it is not. This fits the typical stereotypes.

E. Summary

To summarize, individual work both with and without active teacher participation is the most frequent type of activity in all types of classrooms. Differences among styles stem from the use of large group instruction, which is a major feature of the formal classroom, from the complex pattern of small group instruction, and from the small group working without the teacher, which is a feature of the informal classroom in these samples.

SECTION III. INDICES OF CLASS ACTIVITY

The overall pattern of groupings and activities observed during Study One led us to consider the occurrence of three or more simultaneous activities, to derive and calculate a uniformity ratio indicative of the extent to which all the children in the class were doing the same thing, and to note the times when all the children in the class were working on a single task with the expectation that they would each arrive at identical conclusions.

A. Uniformity Ratio

The large group working with the teacher was a hallmark of formal classrooms in our studies as it has been in other studies (Haddon and Lytton, 1968; Barcher and Ward, 1975). One implication of whole class instruction is that not only is the teacher making all the decisions relevant to the learning situation, but they are generally being made without provision for pupil differences. Without entering the area of pupil choice, our uniformity ratio looks at the overall extent to which pupil differences are taken into account through the provision of differing activities.

The uniformity ratio (Table 12), calculated from the number of periods during the day divided by the number of different activities occurring, has a significant linear effect for Style during both the morning and afternoon ($p< .001$).[1] The overall pattern depicts, not surprisingly, the formal teachers providing the most uniform setting and the informal teachers providing the most variety, with the mixed strategy teachers generally following a middle course.

B. Single Task

A second implication of class instruction is that it does frequently, though not always, lead to the possibility that children of diverse

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[1] This is the only measure in Study Two that was calculated using the entire morning and the entire afternoon rather than the observation period as the baseline. It is also the only measure using periods rather than minutes.

Table 12: Indices of Class Activity in Study Two

	Adjusted Means									
	Style			Building		F-ratios			Analysis of Style Effects t-tests (df=24)	
MEASURES	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Morning										
Uniformity Ratio (%)	62.3	48.1	22.5	39.3	50.6	2.68	10.04****	2.58	-4.33****	-1.01
Single Task (minutes)	14.1	1.3	0.1	6.3	1.8	2.43	8.57***	7.60***	-3.64****	1.68
>3 Simul.Act. (minutes)	14.7	32.0	52.4	39.6	25.6	4.24*	8.96***	1.22	4.23****	0.43
Afternoon										
Uniformity Ratio (%)	70.9	43.6	21.0	43.9	44.3	0.00	7.68***	0.69	-3.84****	0.37
Single Task (minutes)	8.4	0.2	0.1	4.4	-0.3	3.27	4.07*	3.70*	-2.37*	1.42
>3 Simul.Act. (minutes)	4.1	22.8	31.2	22.4	17.6	0.70	6.81***	0.47	3.56***	-1.06
Total										
Single Task (minutes)	22.5	1.5	0.1	10.7	1.5	9.06**	19.99****	17.76****	-5.44****	2.79**
>3 Simul.Act. (minutes)	18.8	54.8	83.6	62.0	43.2	5.13*	17.68****	0.36	5.92****	-0.38

*p< .05, **p< .01, ***p< .005, ****p< .001

abilities will be expected to work to the same standard, thus raising the likelihood of both boredom and frustration.

Single task refers to those periods during which all pupils are doing the same thing with the expectation that the outcome will be identical for all. This happens, for example, when the whole class is doing the same set of math problems or writing a list of spelling words ten times each. This category would not include lessons such as creative writing, even though the stimulus may have been presented to the whole class, since presumably each composition would be different. The crucial distinction is the intended identical outcome.

For the morning and afternoon combined there are statistically significant differences for: Building, Style, and Building by Style at the .01 level (Table 12). These differences result from the fact that single task virtually did not occur, except in the formal, open-plan classes. This one group of teachers used it 25 out of 60 minutes during the morning, and 16.3 out of 40 minutes during the afternoon: nearly half of the observed time with all of the children in the class doing the same activity, expected to produce identical outcomes. This pattern of usage is virtually identical with that found in Study One (Chapter Three, above). This seems to be one of the formal teachers' ways of coping with the open-plan room.

C. Three or More Simultaneous Activities

In contrast with the frequent whole class instruction common to the more formal teaching styles, the informal teacher often provides for a variety of co-occurring learning settings.

The category denoting the occurrence of three or more simultaneous activities refers to the work the pupils are doing and only by implication to the groupings. 'Activities' need not be separate subject areas; they may refer, for example, to an Art period including painting, clay, and collage work. There is a significant linear effect for Style during both morning and afternoon ($p< .005$). Formal teachers in both types of rooms averaged 15 minutes out of the 60 minute observation period during which three or more activities occur simultaneously in the morning; informal teachers averaged 52 minutes out of the 60 minute observation period (Table 12). In the afternoon, three or more simultaneous activities occurred rarely in formal classes, but an average of 31 minutes in the 40 minute observation period in the informal classes. Combining morning and afternoon, the Building effect is also significant at the .05 level, reflecting a higher use of three or more activities in open-plan rooms for all three teaching styles.

D. Associations with the Five Groupings

Pearson correlations between the five groupings and these measures (Table 13) show that, as expected, the uniformity ratio was positively associated with large group instruction both in the morning and in the afternoon ($p< .001$). It was negatively associated during the morning with small groups working both with and without the teacher and with the individual working without the teacher though not with individual instruction. During the afternoon the uniformity ratio was negatively associated with all four of the other groupings. Class teaching is the primary vehicle of the uniform, or undifferentiated, learning environment.

Class teaching is also the primary vehicle for the assignment of a single task to the entire class with the expectation that all responses will be identical. Large group instruction and single task were

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Table 13: Pearson Correlations of the Five Groupings with the Three Indices of Class Activity in Study Two

MORNING	Pearson Correlations (df=28)		
	Uniformity	Single Task	$\geq$ 3 Simul. Act.
With Teacher:			
Individual	-.270	.006	.198
Small Group	-.446**	-.323	.423*
Large Group	.680****	.465**	-.607****
Without Teacher:			
Individual	-.722****	-.310	.611****
Small Group	-.450**	-.345	.542***
AFTERNOON			
With Teacher:			
Individual	-.395*	-.373*	.230
Small Group	-.613****	-.190	.645****
Large Group	.580****	.437*	-.486**
Without Teacher:			
Individual	-.650****	-.479**	.566****
Small Group	-.569****	-.238	.531***
TOTAL			
With Teacher:			
Individual	----	-.086	.068
Small Group	----	-.342	.560****
Large Group	----	.405*	-.433*
Without Teacher:			
Individual	----	-.348	.480**
Small Group	----	-.387*	.717****

*p< .05, **p< .01, ***p< .005, ****p< .001, two-tailed

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significantly, positively associated in both the morning (p< .01) and the afternoon (p< .05). In the afternoon, it was negatively associated with the individual pupil working both with the teacher (p< .05) and without the teacher (p< .01).

By contrast, class teaching was not associated with provision for three or more simultaneous activities in either the morning (p< .001) or the afternoon (p< .01). In both morning and afternoon, three or more simultaneous activities was positively and significantly associated with the use of small groups, both with and without active teacher participation, and with the individual pupil working without the teacher.

SECTION IV. REPORTS FROM TEACHERS, THE OBSERVER, AND PUPILS

The Teaching Styles Questionnaire, the Walberg and Thomas Teacher Questionnaire and parallel Observation-Rating Scale, and the pupil interviews provide information to support the observational findings.

A. Teacher-Observer Agreement

The items from the Walberg and Thomas (1971) Teacher Questionnaire are paralleled by items on the Observation-Rating Scale. Since teachers generally tended to 'disagree' or 'agree' with the statements, while the observer more frequently used the 1 or 4 ratings equivalent to 'strongly disagree' and 'strongly agree', the observer ratings often show greater differences among the groups of teachers. The correlation between the teacher and the observer on a total score calculated from this measure was .78, reflecting the fact that the pattern of ratings by observer and teacher was usually similar, even though the teachers' ratings were often less extreme. We would like to think that the observer's more definite pattern also reflects the perspective gained from the many classrooms studied. In those cases where there are large differences between the two sets of ratings, pupil responses during the interviews tend to support the observer's perception.

B. Basis of Groups

1. Seating Arrangements

In response to items on the Teaching Styles Questionnaire (Bennett,

1976) these teachers generally agreed that pupils sit in groups of three or more rather than separately or in pairs (Table 14). Most pupils in informal classes decide for themselves where they will sit in the classroom; just under 68 percent of the informal teachers in contrast with just over 14 percent of the formal and mixed style teachers reported allowing pupil choice in seating ($p< .01$). Considered by type of room, over 47 percent of those in open-plan rooms in contrast with over 7 percent of those in conventional rooms allowed their pupils to decide for themselves where they would sit ($p< .05$).

2. Ability Grouping

Pupils are allocated to places or groups within the classroom on the basis of their ability according to fifty percent of the formal teachers, dropping to 37 percent of the mixed style teachers, and a low of 10.8 percent of the informal teachers (Table 14). Teacher report of practice seems supported by teacher opinion; just under 40 percent of the formal teachers, under 55 percent of the mixed style teachers, and nearly 90 percent of the informal teachers agreed with the statement "Streaming by ability is undesirable in junior school." Though these differences between teachers of varying styles are not statistically significant, the tendencies are in the expected direction and in accord with Bennett's findings (1976, p. 67). Where ability grouping prevails, it apparently is practised for the whole day. Teachers reported that pupils stay in the same seats or groups for most of the day in nearly 86 percent of the formal and mixed style classes contrasted with just under 22 percent of the informal classes ($p< .005$).

Table 14: Teacher, Observer, and Pupil Reports on the Basis of Groups (Part 1)

	Percent Agreement (Adjusted)[1]						
	Style			Building		Chi-Squares	
ITEMS	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df-1)	S (df-2)
Teaching Styles Questionnaire:							
Are the seats usually arranged so that pupils sit in groups of 3 or more rather than separately or in pairs?	89.2	100.0	100.0	100.0	93.3	0.00	2.45
Do your pupils decide for themselves where they sit in the classroom?	14.2	14.2	67.5	47.5	7.5	3.86*	8.51**
Are pupils allocated to places or groups on the basis of their ability?	50.0	37.0	10.8	35.0	29.5	0.01	3.16
Streaming by ability is undesirable in junior school.	39.2	54.3	89.2	65.0	55.2	0.03	4.83
Do pupils stay in the same seats or groups for most of the day?	85.8	85.8	21.7	52.5	85.0	2.19	11.66***
Walberg and Thomas Teacher Questionnaire:							
Children voluntarily group and regroup themselves.	28.3	38.6	78.3	59.6	32.3	1.24	5.02
I group children for lessons directed at specific needs.	85.8	100.0	67.0	87.3	85.0	0.12	4.91
I use test results to group children in reading and/or math.	85.8	59.8	44.8	70.5	51.5	0.47	3.09

[1] For this and the following tables, "agreement" pools ratings of 4 and 5 on the 5-point Teaching Styles Questionnaire scales, and ratings of 3 and 4 on the 4-point scales of the Walberg and Thomas instruments. For pupil interviews, individual pupil responses were treated as "agreement" or "disagreement" to an item, and combined for each teacher so that "agreement" reflects the consensus of at least 3 of the 4 pupils interviewed.

Table 14: Teacher, Observer, and Pupil Reports on the Basis of Groups (Part 2)

ITEMS	Percent Agreement (Adjusted)					Chi-Squares	
	Style			Building			
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Walberg and Thomas Observation-Rating Scale:							
Children voluntarily group and regroup themselves.	0.0	29.9	78.3	46.3	23.7	0.79	11.64***
Teacher groups children for lessons directed at specific needs.	53.3	75.6	67.0	81.9	47.7	2.52	1.11
Teacher uses test results to group children for reading and/or math.	75.0	22.8	22.2	36.8	36.2	0.12	6.96*
Pupil Interviews:							
Do some pupils do harder work than others do?	100.0	100.0	100.0	100.0	100.0	——	----
Does (teacher) tell you who you must work with?	28.3	29.9	21.7	29.6	23.7	0.00	0.19
Do you have groups?	89.2	91.3	66.5	88.0	77.2	0.09	2.63
Is there a top group?	53.3	29.9	11.3	42.3	15.3	1.41	3.52
When you have groups, does (teacher) decide who's in the groups?	100.0	91.3	56.2	94.0	68.8	1.77	6.90*

*p< .05, **p< .01, ***p< .005

3. Top Groups and Teacher Choice

All pupils interviewed agreed that some children do harder work than others do.

When asked if they have groups, over 89 percent of the pupils interviewed from formal classes, over 91 percent of those from mixed classes, and over 66 percent of those from informal classes agreed (Table 14). Asked if there were a 'top group', over half of those from formal, nearly a third of those from mixed classes, and over a tenth of those from informal classes agreed. Questioned further, those from formal classes usually indicated teacher designated ability groups. Frank L.,[1] from a formal, open-plan room, described how one got to be in the top group by saying, "They're the best at reading"; Keith N., from a mixed style, open-plan room explained, "She knows if you're clever." Pupils from informal classes who felt there were 'top groups' were sometimes referring to the older children in vertically grouped classes. Probing also revealed that some of the children from informal classes were contemplating the implications of 'top group' and evaluating for themselves the quality of performance from groups actually formed through friendship or interest. For example, Beverley H. in an informal class in a conventional room agreed that they did have a 'top group'. When asked 'And how do you get to be in the top group?' she replied,

> Well two people, it's not really a top group, but there are two people who are very good at P.E. because they go to gymnastics--Beth Faith and Irene Santa, but Irene couldn't do P.E. today and she hasn't been for a few weeks cause she hurt her foot in gymnastics.

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[1] Each child has been given a pseudonym which is constant throughout this report. Comments from pupil interviews are transcriptions of tape recorded responses.

When asked, "When you have groups, does (teacher) decide who's in the groups?" all of the children interviewed from formal classes agreed, over 91 percent of those from mixed classes agreed, and just over 56 percent of those from informal classes agreed ($p < .05$).

Over 78 percent of the informal teachers contrasted with just over 28 percent of the formal teachers reported that the children voluntarily group and regroup themselves. The observer also reported that 78 percent of the informal teachers allowed voluntary pupil regrouping, but did not observe this occurring in any of the formal classes ($p < .005$).

4. Small Groups for Specific Purposes

Over 85 percent of the formal teachers, 67 percent of the informal teachers, and all of the mixed style teachers reported that they group children for lessons directed at specific needs (Table 14). The observer again concurred that 67 percent of the informal teachers were grouping children for specific lessons, but observed less than the reported frequency for the other two groups of teachers. In formal classes it was observed just over 53 percent of the time and in mixed style classes over 75 percent of the time. Using test results to group children in reading and/or math was reported by nearly 86 percent of the formal teachers, nearly 60 percent of the mixed style teachers, and nearly 45 percent of the informal teachers. From observation and informal interview, 75 percent of the formal teachers in contrast with under 23 percent of the mixed and informal teachers appeared to use test results to form reading and/or math groups ($p < .05$). Other teachers did group children for instruction in specific skills (as reported above), but these groups tended to be based on teacher perception of weak areas rather than test results and would tend to be a brief grouping rather than an accepted, labelled band of pupils.

C. Work Within Groups

1. Use of Time

Interesting because of its unexpected distribution though not statistically significant, the statement, "Children working in groups waste a lot of time arguing and 'messing about'," was agreed with by just under 40 percent of the formal teachers, over 22 percent of the informal teachers, and just over 7 percent of the mixed style teachers (Table 15).

2. Helping or Cheating

Most teachers reported that they expect the children to do their own work without getting help from other children (Table 15). The observer, noting reprimands for consulting in some classes yet overt teacher suggestions that another child might help in other classes, recorded all the formal teachers, nearly 46 percent of the mixed style teachers, but only just under 22 percent of the informal teachers giving clues to pupils that indicated the children were expected to do their own work without getting help from other children. Many of the teachers, especially the informal ones, drew a line between 'helping' and 'telling'. This is a discrimination the children apparently understood: during the pupil interview, none of the informal pupils agreed to the statement "When your classmate doesn't know how to do something, is it cheating if you help him/her?" Over 47 percent of the pupils interviewed from mixed style classes and over 53 percent of the pupils from formal classes felt that helping would be cheating.

Table 15: Teacher, Observer, and Pupil Reports on Work Within Groups

ITEMS	Percent Agreement (Adjusted)					Chi-Squares	
	Style			Building			
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Teaching Styles Questionnaire:							
Children working in groups waste a lot of time arguing and 'messing about'.	39.2	7.1	22.2	24.8	14.2	0.07	3.20
Walberg and Thomas Teacher Questionnaire:							
Children are expected to do their own work without getting help from other children.	71.7	54.3	55.2	47.0	75.2	1.39	0.70
Walberg and Thomas Observation-Rating Scale:							
Children are expected to do their own work without getting help from other children.	100.0	45.7	21.7	48.3	59.0	0.04	10.92***
Pupil Interviews:							
When your classmate doesn't know how to do something, is it cheating if you help him/her?	53.3	47.3	0.0	36.3	32.7	0.03	6.91*

*p< .05, **p< .01, ***p< .005

D. The Variety of Groupings

Half of the formal teachers and all of the informal teachers reported that their pupils work individually and in small groups at various activities (Table 16). Interpreting 'at various activities' to mean those occurring simultaneously rather than sequentially, the observer found this the typical pattern for all of the informal classes, for nearly 67 percent of the mixed style classes, but for none of the formal classes ($p < .001$).

When asked if they ever work on their own, with a partner, with a few classmates, and with the whole class together most pupils from all styles of classes indicated that they had had these experiences. (This does not, however, indicate frequency.) Though less than 45 percent of the pupils from any of the teaching style groups agreed that they "ever work in a big group with children from other classes," it did appear that the word 'work' was operant. When questioned further, many children disqualified such things as Assembly, Games, television, and occasionally Music since these activities were not considered 'working'. It would appear that from the child's perspective most class groups are discrete entities.

Class Instruction

Affirming the importance of class instruction, over 64 percent of the formal teachers in contrast with under 22 percent of the informal teachers reported that texts and materials are supplied in class sets (Table 16). The observer noted that all of the formal teachers, over 40 percent of the mixed style teachers, yet none of the informal teachers used sets of books or materials for the class as a whole for at least some of the academic subjects ($p < .001$). (Hymnals for Assembly were omitted from consideration.) Placing class teaching as a clear

Table 16: Teacher, Observer, and Pupil Reports on the Variety of Groupings

ITEMS	Percent Agreement (Adjusted)					Chi-Squares	
	Style			Building			
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Walberg and Thomas Teacher Questionnaire:							
Children work individually and in small groups at various activities.	50.0	74.0	100.0	86.7	60.7	1.47	5.73
Texts and materials are supplied in class sets so that all children may have their own.	64.2	55.9	21.7	36.3	63.0	1.18	3.67
My lessons and assignments are given to the class as a whole.	75.0	33.1	11.3	31.4	46.0	0.19	7.52*
Walberg and Thomas Observation-Rating Scale:							
Children work individually and in small groups at various activities.	0.0	66.9	100.0	67.9	47.3	0.58	18.10****
Texts and materials are supplied in class sets so that all children may have their own.	100.0	40.2	0.0	37.5	52.7	0.21	17.32****
The teacher's lessons and assignments are given to the class as a whole.	100.0	17.3	0.0	26.7	44.0	0.36	21.72****
Pupil Interviews:							
Do you ever work on your own?	89.2	100.0	100.0	100.0	93.3	0.00	2.45
Do you ever work with a partner?	64.2	68.5	89.2	82.5	61.8	0.73	1.66
Do you ever work with a few classmates?	100.0	84.3	100.0	94.6	91.3	0.14	2.87
Do you ever have lessons that the whole class does together?	100.0	92.9	100.0	94.6	100.0	0.05	1.24
Do you ever work in a big group with children from other classes added to yours?	28.3	44.1	33.5	52.4	16.2	2.75	0.59
When you're doing numbers will everyone else be doing numbers and when you're doing art will everyone else be doing art?	89.2	47.3	0.0	42.9	46.0	0.04	13.73****

*$p < .05$, **$p < .01$, ***$p < .005$, ****$p < .001$

feature of formal education, 75 percent of the formal teachers, over 33 percent of the mixed style teachers, and only just over 11 percent of the informal teachers agreed with the statement, "My lessons and assignments are given to the class as a whole" ($p < .05$). The observer noted a more extreme pattern, rating all of the formal and none of the informal teachers as giving class lessons and assignments ($p < .001$).

Pupil reports affirm the prevalence of class teaching in the formal classroom and support the observer's report of its rarity in the informal classes. When asked, "When you're doing numbers will everyone else be doing numbers and when you're doing art will everyone else be doing art?" over 89 percent of the pupils interviewed from formal classes agreed, over 47 percent of the pupils from mixed classes agreed, but none of the pupils from informal classes agreed ($p < .001$).

SECTION V. GENERAL CONCLUSIONS

In summary, the groupings do provide a concrete and discriminating index of classroom practices. The detailed results presented in this and the previous chapter support a number of general conclusions:

1. The dominant learning situation is the individual pupil working without active teacher participation, though this varies from the pupil working individually on a task given to the entire class, to the child selecting his own task.
2. Class instruction is used by all styles of teachers, though significantly more so by the formal teachers.
3. Most children sit in groups of three or more. These small groups may occur because of available furniture, for organizational convenience, or to facilitate pupil planning and problem-solving.
4. As an organizational device, small groups are used by teachers of varying styles. For the formal teachers, grouping generally reflects ability streaming while the informal teacher is less likely to use ability groups and more prone to use interest groupings. Informal teachers use small groups more frequently than formal teachers, but building effects complicate the total pattern.

5. In general, concerns with pedagogy and management dominate the teacher's responses to the various grouping patterns when she is actively participating, rather than concerns with discipline or social development.

6. For the groupings without the teacher actively participating, teacher responses shift to a prevailing social focus, though pedagogy and management are still influential.

7. The informal teachers structure a more complex network of activities, often providing for several different sorts of groupings to occur simultaneously.

8. The differences between grouping practices are most evident in the morning when academic work tends to prevail.

CHAPTER FIVE

ORGANIZATION AND EVALUATION OF THE CURRICULUM

> "Curriculum defines what counts as valid knowledge,...evaluation defines what counts as a valid realization of this knowledge on the part of the taught." (Bernstein, 1971, p. 47)

SECTION I. INTRODUCTION

In this chapter we will initially consider the teachers' organization of the curriculum. Which subjects are stressed? In what ways do teachers allow for pupil choice? And returning to our concern with groupings: which groupings are commonly used for each subject?

Secondly, we will be concerned with the way the pupil construes the activities that commonly make up his school day.

In Study One we considered the curriculum as it was observed and also as it was reported by the 12 teachers. In Study Two, four children from each of the 30 classes were interviewed to investigate pupils' perception of school activities. Supporting data were gleaned from the Walberg and Thomas rating scales and the Teaching Styles Questionnaire. (See Figure 1, p. 75.)

SECTION II. VARYING EMPHASES WITHIN THE CURRICULUM IN STUDY ONE

A. Teacher Report of the Groupings Used in Each Subject Area

Each of the twelve teachers in Study One kept a daily tally of the activities engaged in and the groupings encountered by a specific pupil. Four school days were sampled focussing each day on a different pupil. From these teacher records a frequency table was constructed to graphically illustrate which subjects were most emphasized and also which groupings were favoured for which subjects (Table 17).

Teachers reported using individual and large group instruction for

Table 17: Frequency of Groupings for Various Subjects from the Individual Pupil Schedules in Study One

	SUBJECT AREAS									
GROUPINGS	Writing	Reading	Numbers	Science	Social Studies	Physical Education	Religious Education	Music	Art	Drama
With Teacher:										
Individual	13	19	17	4	3	1	1	1	10	
Small Group		4	2	1	1				4	3
Medium Group	1	1	3			2			1	
Large Group	15	18	10	2	19	17	5	11	5	4
Comb'd Classes		1			12	6	25	8	1	2
Total	29	43	32	7	35	26	31	20	21	9
Without Teacher:										
Individual	44	40	34	8	12	2			30	1
Small Group		4	5	3	13				9	3
Medium Group	1	2	6			1			1	
Large Group				1	1				1	
Comb'd Classes										
Total	45	46	45	12	26	3	0	0	41	4
Grand Total	74	89	77	19	61	29	31	20	62	13

the core curriculum of Writing, Reading, and Numbers, with only occasional small group work for Reading and Numbers. From the pupils' viewpoint the dominant grouping was individual work without the teacher.

Art and Science[1] instruction followed a similar pattern: the individual working on his own with some individual and large group teaching, though for Art there was a greater proportion of small group work both with and without the teacher.

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[1] From observation, only 4 of the 12 teachers were actively providing science instruction; of these four, 3 were informal. In each instance there was a mixture of class instruction and individual work. In 5 of the classes there was neither any science taught nor any evidence of it around the room. In 3 other classes where children had substantial choice in the individual topic they followed, some of the pupils did select topics that were predominantly science-oriented.

Social Studies and Drama[1] were slightly more varied. Social Studies instruction was dominated by large group and combined classes teaching; when working without the teacher, however, pupils were equally apt to work in a small group or individually. For Drama, small group work both with and without the teacher was nearly as common as large group instruction.

For Physical Education and Music, large group instruction was favoured though combined classes instruction was also common. The opposite was the case for Religious Education where the combined classes Assembly dominated though some large group instruction was also reported.

Looking at the total frequencies for each subject, Reading, Numbers, and Writing were reported most frequently, as we would expect. Social Studies (dominated by History and Geography) and Art were less frequent than the 3Rs, but were still a common daily feature. Religious Education and Physical Education, both of which are usually determined by school timetable rather than by teacher decisions, were reported only half as frequently as Social Studies and Art. Music, another subject often scheduled on a school-wide basis, was reported even less frequently. All of these findings are as would be expected. What was surprising was the rarity of both Science and Drama.

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[1] In ten of the classes no Drama was observed; neither could the Physical Education fit into the intermediate categories sometimes referred to as Movement or Dance. No pupil improvisation was observed during Study One. In both of the classes where dramatic activities occurred, they were teacher produced practices for parent evenings, one with musical accompaniment.

These patterns were generally true, in both open-plan and conventional rooms, for both formal and informal teachers.

There were no significant Building or Style differences in the total number of activities with the teacher, as tested by the Mann-Whitney U Test (Siegel, 1956, pp. 116-126). There was a significant Building effect for the total number of activities without the teacher ($U=7$, $p=.047$), with those in the open-plan rooms reporting this less than those in the conventional rooms. It should be remembered, however, that teachers were reporting occurrence and not the amount of time spent in a particular way.

B. Observed Differences in the Teaching of Reading and Art

From observing the twelve teachers, it was clear that they all stressed the basic skills while aiming to provide a balanced curriculum. Differences were primarily in the emphases placed within the subjects and in the grouping patterns used. In two subject areas, Reading and Art, these differences were most pronounced.

1. Reading

During the day of observation contrasts in the area of reading were extreme: some teachers used reading as an integrated part of other subject areas, not teaching it separately as either a skill or a content area; other teachers devoted the bulk of the day to reading, employing a variety of approaches to emphasize both the pleasure which reading can involve and the skills which it requires. The difference in approach to reading polarized the formal and the informal teachers: to oversimplify, in classes containing 8-year-old pupils, the formal teachers used reading; the informal teachers taught reading. Three of the twelve teachers had a reading programme that was both intensive and extensive; all three were informal teachers. All six informal teachers made a point of hearing individual pupils read to them; only one formal teacher did. For those with a relatively balanced reading programme, the morning was devoted to skill practice and the afternoon was given to reading for knowledge in other content areas or to reading for pleasure. To reinforce the practice of reading for pleasure, nine of the twelve teachers concluded the day by reading to the children.

2. Art

Eleven of the 12 classes had art work at some point during the day of observation for at least some of the pupils. Formal teachers tended to emphasize the product while informal teachers emphasized the process.

To illustrate, in two formal classes pupils were given step-by-step instructions which led to the production of uniform products. In another formal class, when pupils had tidied away, they filed to the front of the room with their work to hold it up for the teacher and their classmates to see and comment. Though products were extensively displayed in the informal classrooms, the value was placed on expression and experimentation. In one informal class art work was going on throughout the day, both in relation to other content areas and as a separate, expressive activity itself. In another informal class, the entire room was turned over to creative activities with a variety of media available for pupils to select from. Both formal and informal classes linked art with topic work, usually with children selecting their own materials and using them as they wished.

C. Observed Framework for Pupil Choice

Looking at the organization of the day across subject boundaries, pupil choice was another area in which teachers differed in their emphases. Nine of the twelve teachers provided opportunities for some pupil decision-making. We will use the term 'framework' to refer to this since the teacher provided a framework within which the pupil determined some part of the substance. In several instances, the teacher determined the subject area while pupils were relatively free in their selection of media, pace and sequence, and format for the response. Examples observed included art lessons in which the teacher provided the initial stimulus, perhaps from a story or their Social Studies unit, and then allowed the children to select their own materials and the form of their response within the limits of the supplies available. Creative writing, topic work, and some reading periods followed a similar pattern. Another, though less frequent, framework setting was time; the pupils were to work in three subject areas during the morning, but they could determine the sequence and relative duration of the activities. In the least structured framework situation the teacher allowed most pupils to select their own activity as long as it was constructive and quiet enough for her to work intensively with a small group or an individual.

From the Observation Schedule, analyses of variance based on the number of minutes indicate that the informal teachers provided significantly ($p< .05$) more opportunity for the pupils to make decisions affecting their learning activities as indicated by the framework periods (Table 18). Analysis of the number of periods showed a similar trend. To portray this considerable difference more starkly, we note that during the full day of observation, the formal teachers averaged 35.8 minutes contrasted with the informal teachers' average of 99.2 minutes when some framework allowing pupil choice was provided.

Table 18: Framework Allowing Pupil Choice in Study One

	Means				F-ratios		
	Formal		Informal				
	Open (N=3)	Conv. (N=3)	Open (N=3)	Conv. (N=3)	B (df=1;8)	S (df=1;8)	BS (df=1;8)
Periods	0.3	1.7	2.7	3.7	1.44	4.97#	0.03
Minutes	8.3	63.3	88.3	110.0	1.95	5.32*	0.37

#$p < .10$, *$p < .05$

Three of the six formal teachers had no sessions that could be considered framework periods; full instructions were given for each activity.

SECTION III. AIMS AND ORGANIZATION OF THE CURRICULUM IN STUDY TWO

In the light of these findings, observation in Study Two focussed on those five areas reported most frequently in Study One with special attention to Reading and Art since they both distinguished between formal and informal practices. In practice this was convenient since most teachers emphasize the 3Rs during the morning and provide opportunities for Art and topic work during the afternoon.

Thirty different teachers and their classes were observed for Study Two including 13 whose practices could best be described as a mixture of formal and informal. Teachers completed two questionnaires (Bennett, 1976; Walberg and Thomas, 1971). We will turn first to relevant data from these instruments.

A. Aims

The acquisition of basic skills in reading and number work was considered very important or essential by all thirty teachers (Table 19).

Table 19: Teaching Aims (Part 1)

ITEMS	Percent Agreement (Adjusted)[1]					Chi-Squares	
	Style			Building			
Teaching Styles Questionnaire: (Aims)	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Preparation for academic work in secondary school.	14.2	24.4	22.7	24.1	17.3	0.00	0.33
An understanding of the world in which pupils live.	64.2	51.2	66.5	70.5	44.5	1.13	0.63
The acquisition of basic skills in reading and number work.	100.0	100.0	100.0	100.0	100.0	----	----
The development of pupils' creative abilities.	60.8	70.1	89.2	70.4	77.2	0.00	1.86
The encouragement of self-expression.	67.5	78.8	100.0	83.7	80.0	0.05	3.23
Helping pupils to co-operate with each other.	60.8	92.9	88.7	75.3	93.3	0.67	3.91
The acceptance of normal standards of behaviour.	60.8	70.1	55.7	58.4	69.7	0.06	0.50
The enjoyment of school.	50.0	75.6	88.7	75.3	69.3	0.00	3.29
The promotion of a high level of academic attainment.	35.8	29.9	22.7	34.9	22.0	0.13	0.36

[1] For the Teaching Styles Questionnaire, ratings of aims as 'Very important' or 'Essential' are treated as 'agreement'. For the Walberg and Thomas instruments, ratings of '3' or '4' on their 4-point scales are treated as 'agreement'.

Table 19: Teaching Aims (Part 2)

	Percent Agreement (Adjusted)						
	Style			Building		Chi-Squares	
ITEMS	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Walberg and Thomas Teacher Questionnaire:							
I promote a purposeful atmosphere by expecting and enabling children to use time productively and to value their work and learning.	100.0	100.0	100.0	100.0	100.0	----	----
Academic achievement is my top priority for the children.	71.7	22.8	22.7	36.2	35.3	0.11	6.10*
Children are deeply involved in what they are doing through the day.	85.8	91.3	100.0	93.3	91.3	0.24	1.26
Walberg and Thomas Observation-Rating Scale:							
Teacher promotes a purposeful atmosphere by expecting and enabling children to use time productively and to value their work and learning.	35.8	92.9	100.0	74.6	86.7	0.13	13.27****
Academic achievement is the teacher's top priority for the children.	85.8	38.6	11.3	42.3	44.0	0.08	9.77**
Children are deeply involved in what they are doing.	10.8	70.1	100.0	57.1	71.3	0.18	14.95****

*p< .05, **p< .01, ***p< .005, ****p< .001

For most of the formal teachers academic achievement is of paramount importance; nearly 72 percent of the formal teachers, contrasted with less than 23 percent of the mixed style and informal teachers, agreed that "Academic achievement is my top priority for the children" ($p< .05$). Observer report augmented this difference ($p< .01$). Academic competence is an immediate rather than a long-term aim; only 14 percent of the formal teachers and just under 23 percent of the informal teachers believed that "Preparation for academic work in secondary school" was a very important or essential goal.[1]

Approximately 65 percent of both the formal and the informal teachers reported that they hope to guide pupils to an understanding of the world in which they live. Over half of the teachers also regarded it as very important or essential that pupils accept normal standards of behaviour.

Informal teachers reported valuing the affective aspects of the classroom to a greater extent than did the formal teachers, though the differences are not statistically significant. Over 89 percent of the informal teachers, though less than 61 percent of the formal teachers, agreed that the development of pupils' creative abilities is very important or essential. All of the informal teachers, compared with under 68 percent of the formal teachers, rated the encouragement of self-expression similarly. The enjoyment of school was highly valued by nearly 89 percent of the informal teachers in contrast with just half of the formal teachers. Helping pupils to co-operate with each other was at least 'very important' to nearly 89 percent of the informal teachers compared with only 61 percent of the formal teachers.

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[1] The slightly greater percentage of informal than formal teachers concerned with preparation for secondary school may be an artifact of the larger age span within their classes. While the formal teachers had register groups composed entirely of second year junior pupils (8-year-olds), two of the informal teachers had combination second and third year groups and one of the informal teachers taught a register group composed of second through fourth year juniors. For these three informal teachers, secondary schooling is a more imminent prospect.

It comes as no surprise that all teachers agreed that 'I promote a purposeful atmosphere by expecting and enabling children to use time productively and to value their work and learning'. A teacher could hardly be expected to endorse an unpurposeful atmosphere, wasted time, or a low valuation of school work! Treading gingerly, the observer interpreted 'purposeful atmosphere' to mean that the pupils demonstrated not only concentration on the task but also appeared to derive satisfaction rather than relief from completing it. 'Expecting and enabling children to use time productively' implies an organization which ensures that both the pacing and the content of activities is appropriate for the individual pupil. In order to 'value their work and learning' pupils must derive immediate satisfaction for it and/or be convinced that it will be useful in the future. (The 8-year-old is naturally more interested in immediate satisfaction.) With these qualifications, all of the informal teachers, nearly 93 percent of the mixed style teachers, but only 36 percent of the formal teachers, were rated as promoting a purposeful atmosphere by expecting and enabling children to use time productively and to value their work and learning ($p< .001$). Stretching the purposeful atmosphere to pupil involvement, observer records indicated that most of the time in only 11 percent of the formal classes, in 70 percent of the mixed style classes, but in all of the informal classes children were deeply involved in what they were doing ($p< .001$).

B. Organization

The organization of the school day or week to provide opportunities for the pupils to work in groups of varying compositions has been discussed in chapters three and four. Briefly recalling the findings, we note that the informal teachers considered streaming by ability undesirable, but did use small group lessons, basing the instruction on the individual child and his interaction with the particular materials. In contrast, most formal teachers used test results to group children for reading and/or maths though they reported and were observed giving their lessons and assignments to the class as a whole. Pupils' reports also reflected the prevalence of class teaching in the formal classroom.

1. Materials

A prime issue in the organization of materials is their distribution (Tables 20 and 21). In the formal classroom the teacher directs distribution while in the informal classroom pupils often are permitted to supply themselves though general guidelines about procedure are explicit. Over 78 percent of the formal teachers, in contrast with under 11 percent of the informal teachers, reported that materials are kept out of the way until they are distributed or used under teacher direction ($p < .05$). Teachers with mixed styles assumed a middle position with nearly 42 percent opting for teacher distribution. Observer reports emphasized the distinction ($p < .001$). Affirming teacher control of resources, nearly 90 percent of the formal teachers, but just over 22 percent of the informal teachers, agreed that they make sure children use materials only as instructed ($p < .05$). Observation revealed totally polarized practices: all of the formal teachers, nearly half of those with mixed styles, but none of the informal

Table 20: Teacher Report on Materials

ITEMS	Percent Agreement (Adjusted)						
	Style			Building		Chi-Squares	
Walberg and Thomas Teacher Questionnaire:	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Materials are kept out of the way until they are distributed or used under my direction.	78.3	41.8	10.8	32.1	55.5	0.84	7.91*
I make sure children use materials only as instructed.	89.2	61.4	22.2	59.8	53.5	0.00	7.94*
Materials are readily accessible to children.	71.1	91.3	89.2	86.7	83.8	0.09	1.68
Manipulative materials are supplied in great diversity and range, with little replication.	25.0	68.5	77.8	63.2	55.2	0.00	5.65
Children work directly with manipulative materials.	71.7	100.0	89.2	86.7	92.5	0.01	4.13
The environment includes materials I have developed.	100.0	84.3	78.3	94.6	76.3	0.84	1.84
Common environmental materials are provided.	85.8	84.3	100.0	87.9	91.3	0.09	1.54
Our program includes use of the neighborhood.	50.0	51.2	67.0	69.8	37.0	2.02	0.68
Children use "books" written by their classmates as part of their reading and reference materials.	0.0	15.8	55.7	23.4	23.7	0.17	8.07*
The environment includes materials developed or supplied by the children.	75.0	70.1	100.0	77.1	84.7	0.00	3.22
Children's activities, products and ideas are reflected abundantly about the classroom.	100.0	100.0	100.0	100.0	100.0	----	----

*p< .05

Table 21: Observer Report on Materials

ITEMS	Percent Agreement (Adjusted)					Chi-Squares	
	Style			Building			
Walberg and Thomas Observation-Rating Scale:	Formal (N=8)	Mixed (N=13)	Informal N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Materials are kept out of the way until they are distributed or used under the teacher's direction.	100.0	54.3	0.0	48.3	52.7	0.02	17.10****
Teacher makes sure children use materials only as instructed.	100.0	45.7	0.0	48.3	44.0	0.02	17.03****
Materials are readily accessible to children.	0.0	100.0	100.0	73.3	73.3	0.17	30.00****
Manipulative materials are supplied in great diversity and range, with little replication.	0.0	84.3	100.0	67.9	64.7	0.04	22.26****
Children work directly with manipulative materials.	10.8	84.3	100.0	67.9	71.3	0.04	18.24****
The environment includes materials developed by the teacher.	50.0	100.0	100.0	86.7	86.7	0.29	12.69***
Common environmental materials are provided.	39.2	59.8	100.0	75.8	54.0	0.75	7.46*
The program includes use of the neighborhood.	0.0	51.2	78.3	62.5	23.7	3.05	10.75***
Children use "books" written by their classmates as part of their reading and reference materials.	0.0	15.8	33.5	17.4	16.2	0.16	3.41
The environment includes materials developed or supplied by the children.	14.2	54.3	100.0	58.3	56.0	0.06	12.84***
Children's activities, products and ideas are reflected abundantly about the classroom.	85.8	82.7	100.0	93.3	82.7	0.11	1.69

*p< .05, **p< .01, ***p< .005, ****p< .001

teachers made sure that children used materials only as instructed (p< .001). Though informal teachers frequently suggested or demonstrated the use of specific materials, pupil experimentation was always a viable alternative. According to their teachers, materials were readily accessible to children in nearly 72 percent of the formal classes and in approximately 90 percent of the mixed style and informal classes. Interpreting 'readily accessible' to mean that the pupil could supply himself either with or without specific teacher permission, the observer found that in both the mixed style and informal classes, children did get materials, but in all of the formal classes the teachers controlled distribution (p< .001). Materials were effectively inaccessible to their pupils.

With pupils in informal classrooms provisioning themselves, an abundant supply of enticing materials is essential. Some 35 identical textbooks will not suffice! One aspect of enticing is the availability of materials to manipulate. Teachers reported that manipulative materials were supplied in great diversity and range, with little replication in nearly 78 percent of the informal classes, over 68 percent of the mixed style classes, but in only 25 percent of the formal classes. Observer report also indicated a polarization of formal and informal practice (p< .001). Though from 72 to 100 percent of the teachers agreed that children work directly with manipulative materials, during the day of observation this was noted in only 11 percent of the formal classes, in nearly 85 percent of the mixed style, and in all of the informal classes (p< .001).

A second aspect of enticing is relevance. Over 78 percent of the informal teachers, 84 percent of the mixed style teachers, and all of the formal teachers reported that the environment includes materials the teacher has developed. During observation, half of the formal teachers and all of the mixed style and informal teachers used materials developed by themselves ($p < .005$). Providing common environmental materials (such as rocks and plants available in the area) was reported by 85 percent of the formal and mixed style teachers and by all of the informal teachers. These types of items were observed in nearly 40 percent of the formal classes, nearly 60 percent of the mixed style classes, and all of the informal classes ($p < .05$). It is pertinent that while informal teachers tended to consider environmental objects a continuing feature of the classroom, both formal and mixed style teachers tended to emphasize them for a specific and finite topic. Use of the neighbourhood was reported by approximately half of the formal and mixed style teachers and by 67 percent of the informal teachers. This was one of the items for which observation was augmented by teacher-observer conversations. On the basis of the combined observation and conversation, none of the formal teachers, 51 percent of the mixed style teachers, and 78 percent of the informal teachers seemed to use the neighbourhood moderately or frequently.[1]

Besides manipulation and relevance, the interests of fellow classmates can be powerfully enticing. According to teacher report, children used "books" written by their classmates as part of their reading and reference materials in nearly 56 percent of the informal classes, dropping to nearly 16 percent in the mixed style classes, and disappearing altogether in the formal classes (p< .05). Observer report showed a similar though non-significant pattern. From 70 to 100 percent of the teachers reported that the environment included materials developed or supplied by the children. Observer interpretation included only those pupil possessions that were teacher sanctioned during school time, and not the games or equipment that entertain at playtime or such items as decorative pencil boxes that form no part of the learning situation. All of the informal classes, 54 percent of the mixed style classes, but only 14 percent of the formal classes used materials developed or supplied by the pupils as part of the learning environment (p< .005).

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[1] One formal teacher was planning a unit on the natural environment stressing observation, recording, and classification. Since the neighbourhood was not a feature of the learning programme during the first two terms of the year, the projected topic seemed more an occasional than a moderate or frequent use of the neighbourhood. The planned emphasis on identification of wildlife and exclusion of the study of the people in the area cemented the impression that this isolated unit was not an example of what Walberg and Thomas intended in the phrase 'use of the neighbourhood'.

Whatever the manner of distribution or the abundance of supply of materials, all teachers reported that children's activities, products, and ideas are reflected abundantly about the classroom. The observer agreed.

2. Integration

Describing open educators, or what we refer to as informal teachers, Perrone (1972) suggests that they "see the integration of learning, its wholeness, as an essential base for personalizing the educational process. Such a view does not negate the need for basic skills. These skills are considered fundamental, but never in isolation from other learning experiences" (p. 8). This view was generally concurred with and reflected in the work of the informal teachers in this sample. Divisions of work into subject matter areas was reported by all of the formal teachers, 63 percent of the mixed style teachers, but only 33 percent of the informal teachers (p< .05) (Table 22). During observation all of the formal teachers, 93 percent of the mixed

Table 22: Teacher and Observer Reports on Integration

	Percent Agreement (Adjusted)						
	Style			Building		Chi-Squares	
ITEMS	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Walberg and Thomas Teacher Questionnaire:							
The work children do is divided into subject matter areas.	100.0	63.0	33.0	54.3	76.3	0.74	8.25*
I base my instruction on curriculum guides or the text books for the grade level I teach.	60.8	63.0	22.2	41.0	62.2	0.61	4.04
Walberg and Thomas Observation-Rating Scale:							
The work children do is divided into subject matter areas.	100.0	92.9	10.8	64.6	77.5	0.13	21.76****
Teacher bases her instruction on curriculum guides or text books for the grade level she teaches.	100.0	54.3	11.3	54.3	52.7	0.08	13.39****

*p< .05, **p< .01, ***p< .005, ****p< .001

style teachers, but only 11 percent of the informal teachers divided work distinctly into subject matter areas (p< .001). Several of the informal teachers specifically commented that this integration of subject areas should not lead to a neglect of the direct teaching of specific skills nor should integration become an overriding concern in itself. Their central objective was blending of subject areas to provide a broader perspective on the questions under study.

Integration demands the wide range of materials referred to above. According to teacher report, 61 percent of the formal teachers, 63 percent of the mixed style teachers, and 22 percent of the informal teachers base their instruction on curriculum guides or the textbooks for the grade level they teach. During observation, all of the formal teachers, 54 percent of the mixed style teachers, and over 11 percent of the informal teachers relied heavily or solely on teacher manuals or textbooks (p< .001). Most of the informal teachers and nearly half of the mixed style teachers, though familiar with the guides and texts appropriate to their classes, used a wide range of materials drawn from various contexts.

SECTION IV. PROVISIONS FOR PUPIL CHOICE IN STUDY TWO

A. Observed Provision of Frameworks for Pupil Choice

After visiting 53 open-plan primary schools during the school year 1970/71, a team of HMIs presented their observations:

> No school gave the children total freedom of choice, and there was always some expectation about the kind of things to be covered in one or two days, or in a week; and they always included reading, writing, mathematics and usually creative work.
> (Department of Education and Science, 1972, p. 11)

Our sample of 42 teachers and their classes from Studies One and Two matches this description. As has already been discussed ('Observed

Framework for Pupil Choice', above) the manner in which teachers provided for pupil choice distinguishes between formal and informal teachers. For Study Two we continued the use of framework to describe teacher structuring of pupil options. We subdivided framework into six categories to investigate those areas in which teachers were allowing pupil choice:

> Pupil choice of timing includes the pace, sequence, or duration of work.
>
> Pupil choice of partners refers to the companions with whom the pupil works.
>
> Choice of locations while working may be noted either within the room or building.
>
> Pupil choice of content, or discipline, is indicated in those instances when the pupil may decide whether to do, say, maths or writing.
>
> Pupil choice of activity refers to those decisions made within a discipline. One common example is the art lesson in which pupils select among painting, clay, or model building.
>
> Pupil choice of materials includes selection such as reading or reference materials, art supplies, and maths equipment.

The framework teachers provided could clearly allow for pupil choice in one, several, or all of the areas. We anticipated that framework would again distinguish among the teaching styles, and further, that teachers with mixed styles might be prone to provide options in some areas, though not in others. (Instruments and instructions for their use may be found in Appendix II.)

1. Formal Classes

We found in fact that none of the formal teachers provided opportunities for pupil choice in any of the six subcategories of framework during either the morning or the afternoon (Table 23). Similarly on the Teaching Styles Questionnaire, we found that only one of the formal teachers reported allowing pupils to select their own seats; this was not evident during the one day of observation.

Table 23: Minutes of Observed Framework Allowing Pupil Choices in Study Two

FRAMEWORK	Means							
	Formal		Mixed		Informal		Chi-Squares[1]	
Morning	Open (N=4)	Conv. (N=4)	Open (N=8)	Conv. (N=5)	Open (N=5)	Conv. (N=4)	B (df=1)	S (df=2)
Pupil Choice of:								
Timing	0.0	0.0	22.5	19.0	56.0	47.5	0.02	17.10****
Partners	0.0	0.0	13.8	10.0	56.0	52.5	0.00	18.88****
Location	0.0	0.0	13.8	0.0	60.0	52.5	0.28	20.87****
Content	0.0	0.0	0.0	0.0	56.0	15.0	1.13	17.77****
Activity	0.0	0.0	3.8	4.0	56.0	7.5	0.58	11.26***
Materials	0.0	0.0	8.1	5.0	44.0	13.8	0.07	9.62**
(Minutes of observation = 60)								
Afternoon								
Pupil Choice of:								
Timing	0.0	0.0	5.0	16.0	36.0	30.0	0.08	20.05****
Partners	0.0	0.0	24.4	32.0	36.0	30.0	0.00	18.61****
Location	0.0	0.0	20.0	16.0	36.0	30.0	0.02	17.10****
Content	0.0	0.0	0.0	0.0	36.0	6.3	1.13	17.77****
Activity	0.0	0.0	4.4	24.0	36.0	15.0	0.01	11.27***
Materials	0.0	0.0	0.0	8.0	36.0	23.8	0.11	21.05****
(Minutes of observation = 40)								

[1] Because the formal cells had a mean of zero, and consequently no variation, analysis of variance was inappropriate. Chi-squares testing occurrence versus no occurrence were calculated instead.

*p< .05, **p< .01, ***p< .005, ****p< .001

2. Informal Classes

The informal teachers, and particularly those in open-plan rooms, allowed for nearly continuous pupil decision-making; in the open-plan, informal classroom, pupils could select their own location during the entire 60 minute morning observation period; they could exercise choice in timing, partners, content and activity an average of 56 of the 60 minutes; and could select their own materials an average of 44 of the 60 minutes. In the afternoon, pupil choice averaged 36 minutes out of a 40 minute observation period for each of the six categories of framework.

Just slightly less pupil choice was provided for in the informal, conventional rooms: partners and location were pupil decisions for over 52 of the 60 minutes, timing for over 47 minutes, then dropping considerably to 15 minutes of pupil choice for content area (or discipline), nearly 14 minutes of pupil choice of materials, and under 8 minutes of pupil choice of activity during the morning. The afternoon pattern was similar to the morning's: again timing, partner, and location options were most frequent, occurring an average of 30 of the 40 minutes. The next most common option, however, was selection of materials, averaging nearly 24 minutes. This is not surprising since both art and topic work are common afternoon activities. Pupils in informal, conventional rooms had a choice of activities within the discipline for an average of 15 of the 40 minutes, and a choice of content or discipline just over 6 minutes.

The overall picture shows that pupil choice was nearly continuous in the informal, open-plan rooms and was considerable in the informal, conventional rooms.

3. Mixed Style Classes

Teachers with mixed styles used five of the six framework categories, though to a lesser extent than the informal teachers. Pupil choice of content area, or discipline, did not occur in mixed style classes in either the open-plan or conventional rooms, in either the morning or the afternoon. In the morning, in mixed style, open-plan classes pupils had choice of timing for over 22 of the 60 minutes and a choice of partners and location for nearly 14 minutes. They could select their own materials an average of over 8 minutes, and their own activity an average of nearly 4 minutes. The afternoon pattern varied from the morning's. Pupils determined timing an average of only 5 of the 40 minutes, but selected their own partners an average of over 24 minutes and their own location an average of 20 minutes, or half of the observed time. They selected their own activity for only 4 of the 40 minutes and surprisingly did not select their own materials at all.

Paralleling the informal pattern, in the morning mixed style classes in conventional rooms allowed for less pupil choice than was the case in open-plan rooms. Pupils could exercise options on the timing of their work an average of 19 of the 60 minutes in the morning and could select their own partners an average of 10 minutes. Pupils could determine their own materials and activities for only 5 and 4 minutes respectively out of the 60 minutes observed. They were not allowed to select their own location at all in the morning. In the afternoon the pattern in mixed style, conventional rooms was more flexible, probably reflecting the change from the 3Rs to art and topic work. For 32 of the 40 minutes observed, pupils could select their own partners. For an average of 24 minutes they selected their own activity.

Timing and location were pupil options for 16 of the 40 minutes, with pupil choice of materials averaging 8 minutes.

In general, the mixed style classes allowed moderate opportunities for pupil choice of timing, partners, and location, with occasional pupil choice of activities and materials, and no pupil choice of the discipline he works in. This is a middle position between the formal teachers' rejection of pupil choice and the informal teachers' nearly continuous provision for it.

4. Building and Style Effects

Chi-square tests for occurrence or non-occurrence of timing, partners, location, and content show a statistically significant Style effect beyond the .001 level in both the morning and the afternoon (Table 23). Activity has a statistically significant Style effect beyond the .005 level for both morning and afternoon. The Style effect for materials is significant beyond the .01 level in the morning and the .001 level in the afternoon. There are no significant Building effects.

B. Teacher and Pupil Reports of Pupil Choice

Supporting the observation schedule data, the questionnaire item 'The day is divided into large blocks of time within which children, with my help, determine their own routine' was agreed with by none of the formal teachers, by over 21 percent of the mixed style teachers, and by over 78 percent of the informal teachers ($p< .001$) (Table 24). Observer reports support the formal and informal percents, but none of the mixed style teachers were observed while pupils were determining their own routine ($p< .001$). Conversely, all of the formal and all of the mixed style teachers reported that they plan and schedule the

Table 24: Teacher, Observer, and Pupil Reports of Pupil Choice

	Percent Agreement (Adjusted)						
ITEMS	Style			Building		Chi-Squares	
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Walberg and Thomas Teacher Questionnaire:							
The day is divided into large blocks of time within which children, with my help, determine their own routine.	0.0	21.3	78.3	46.3	15.0	2.00	13.18****
I plan and schedule the children's activities through the day.	100.0	100.0	44.3	82.0	85.0	0.08	14.03****
Walberg and Thomas Observation-Rating Scale:							
Day is divided into large blocks of time within which children, with the teacher's help, determine their own routine.	0.0	0.0	78.3	30.0	15.0	0.28	21.50****
Teacher plans and schedules the children's activities through the day.	100.0	100.0	21.7	70.0	85.0	0.28	21.50****
Pupil Interviews[1]:							
Do you ever choose what activity you want to do?	10.8	22.8	89.2	40.8	37.8	0.04	13.55****
Does (teacher) tell you when to do a particular activity?	100.0	92.9	77.3	82.6	100.0	0.94	2.65
May you choose how long you'd like to stay working on an activity?	0.0	7.1	55.7	23.4	15.0	0.01	10.60***

[1] For this and the following tables, individual pupil responses were treated as 'agreement' or 'disagreement' to an item, and combined for each teacher so that 'agreement' reflects the consensus of at least 3 of the 4 pupils interviewed.

*p< .05, **p< .01, ***p< .005, ****p< .001

children's activities through the day, while only 44 percent of the informal teachers concurred ($p< .001$). During observation, it was noted that all of the formal and mixed style teachers planned and scheduled the children's activities through the day, but fewer than 22 percent of the informal teachers had done so ($p< .001$).

Pupil reports supported those from the teachers. When asked, 'Do you ever choose what activity you want to do?' nearly 90 percent of the pupils interviewed from informal classes agreed. Just under 23 percent of those in mixed style classes and under 11 percent of the children interviewed from formal classes thought they ever had the opportunity to choose their own activity ($p< .001$). Emphasizing that framework does not imply totally free choice, when asked, 'Does (teacher) tell you when to do a particular activity?' over 77 percent of the pupils interviewed from informal classes, 93 percent from mixed style, and all of those from formal classes agreed that the teacher did indeed tell them when to do something. None of the pupils interviewed from formal classes, 7 percent of those from mixed style classes, but nearly 56 percent of those from informal classes agreed that they could choose how long they would like to stay working on an activity ($p< .005$).

In short, both teacher responses to questionnaire items and pupil responses during the interview supported the observation schedule findings that formal teachers control the learning environment for their pupils while informal teachers structure a framework within which pupils make relevant choices.

SECTION V. EVALUATION OF PUPILS IN STUDY TWO

In all types of buildings with all styles of teaching, evaluation is a necessary and pervasive element of the teaching-learning situation. The emphases in evaluation highlight the values of the teacher.

A. Teacher Evaluation of Individual Pupils

The formal teacher evaluates the individual child in comparison with his peers; the informal teacher is primarily concerned with guiding and assessing individual progress. Nearly 86 percent of the formal teachers reported that they use tests to evaluate children and rate them in comparison to their peers, while only 22 percent of the informal teachers and 37 percent of the mixed style teachers endorsed comparisons between children ($p < .05$) (Table 25). On the basis of observation and teacher-observer conversation, all of the formal teachers, but none of the informal teachers were using tests to evaluate children and rate them in comparison to their peers ($p < .001$). Two of the relevant Walberg and Thomas teacher questionnaire items proved difficult for the teachers to interpret. The observer ratings, made after teacher-observer conversations, are more likely in these instances to provide an accurate account of practices; teacher responses are given to complete the picture. On the first item, roughly 70 percent of all teachers reported giving children tests to find out what they know. Following teacher-observer conversation, it was concluded that all of the formal teachers and 70 percent of the mixed style teachers used testing to find out what their pupils had learned, while only 23 percent of the informal teachers used paper and pencil tests ($p < .005$). Most of the informal teachers based evaluation on a combination of observing and working with the pupil on a particular task plus

Table 25: Teacher Evaluation of Individual Pupils

	Percent Agreement (Adjusted)						
	Style			Building		Chi-Squares	
ITEMS	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Teaching Styles Questionnaire:							
Pupils work better when motivated by marks or stars.	100.0	52.8	22.2	59.8	51.5	0.01	10.53***
Walberg and Thomas Teacher Questionnaire:							
I use tests to evaluate children and rate them in comparison to their peers.	85.8	37.0	22.2	47.7	42.8	0.01	7.60*
I give children tests to find out what they know.	71.7	68.5	67.0	69.8	67.7	0.07	0.05
Children expect me to correct all their work.	89.2	92.9	66.0	76.6	93.3	0.54	3.07
To obtain diagnostic information, I observe the specific work or concern of a child closely and ask immediate, experience-based questions.	100.0	85.8	100.0	89.2	100.0	0.21	2.57
I keep a collection of each child's work for use in evaluating his development.	75.0	77.2	100.0	82.5	84.7	0.11	2.57
Walberg and Thomas Observation-Rating Scale:							
Teacher uses tests to evaluate children and rate them in comparison to their peers.	100.0	29.9	0.0	42.9	35.3	0.00	18.61****
Teacher gives children tests to find out what they know.	100.0	70.1	22.7	65.8	61.3	0.02	11.36***
Children expect the teacher to correct all their work.	100.0	91.3	43.8	76.0	83.8	0.01	10.17**
To obtain diagnostic information, the teacher closely observes the specific work or concern of a child and asks immediate, experience-based questions.	0.0	51.2	100.0	62.5	38.7	0.86	16.98****
Teacher keeps a collection of each child's work for use in evaluating his development.	42.5	61.4	100.0	77.1	56.0	0.69	6.88*

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .005$, $^{****}p < .001$

regular reading of pupil work. The difficulty with the second item centred on the interpretation of the word 'correct' in the item 'Children expect me to correct all their work'. Some 89 percent of the formal teachers, 93 percent of the mixed style teachers, and 66 percent of the informal teachers recorded agreement with the item, though several teachers spontaneously suggested that they interpreted the item to mean 'comment on' rather than 'correct' in the sense of circling misspelled words or assigning a letter grade. In view of these teacher comments, it was concluded that all of the formal teachers and 91 percent of the mixed style teachers did foster the pupil expectation that they would 'correct' all pupil work. Approximately 44 percent of the informal teachers also marked all pupil work ($p < .01$).

This study did not investigate the various methods of correcting pupil work. One further indication of grading practices, however, is the report of teacher opinion from the Teaching Styles Questionnaire. All of the formal teachers, nearly 53 percent of the mixed style teachers, but only 22 percent of the informal teachers agreed that pupils work better when motivated by marks or stars ($p < .005$).

Though all formal and informal and 86 percent of the mixed style teachers reported that to obtain diagnostic information, they observe the specific work or concern of a child closely and ask immediate, experience-based questions, this was not evident from either observation or teacher-observer conversation. Formal teachers used testing and grading to assess children, as did mixed style teachers to a lesser extent. None of the formal teachers, over half of the mixed style teachers, and all of the informal teachers were considered by the observer to obtain diagnostic information by observation followed by immediate, experience-based questions ($p < .001$).

Keeping a collection of each child's work to use in evaluating his development is reported by 75 percent of the formal teachers, 77 percent of the mixed style teachers, and all of the informal teachers. Further queries from the observer suggested that nearly 43 percent of the formal teachers, over 61 percent of the mixed style teachers and all of the informal teachers keep such collections of pupil work ($p< .05$) Such a collection is essential in the informal classrooms where records are largely discursive rather than letter-grades or percentages.

In summary, the formal teachers test pupils and rate them in comparison with their peers; informal teachers generally do not. Instead, they observe the individual pupil at work and ask him questions in order to obtain relevant diagnostic information.

B. Classroom Climate

All 30 teachers reported that the emotional climate in their classrooms was warm and accepting. Acknowledging the difficulty in defining a 'warm, accepting' climate, the observer nevertheless felt that personal criticism of a pupil, sharp criticism with no explanatory comments about how the child might improve a particular piece of work, and comments about 'this type of child' made in derogatory tones (sometimes within the hearing of pupils) each cooled the atmosphere. The highest incidence of such remarks occurred in formal classrooms; none were heard in informal classrooms. Consequently, 39 percent of the formal classrooms, 84 percent of the mixed style classrooms, and all of the informal classrooms were considered warm and accepting pupil environments ($p< .01$).

C. Pupil Evaluation of Their Classmates

Pupils may evaluate their peers in response to queries from their teacher, from classmates themselves, or simply from their own curiosity. When asked if their teacher ever asked if they liked someone else's story, 25 percent of the pupils from formal classes, nearly 56 percent of those from informal classes, and 67 percent of the pupils from mixed style classes agreed that their teachers did request evaluations (Table 26). Slightly more pupils agreed that their teacher asked if they liked someone else's picture or model: 50 percent from the formal classes, nearly 60 percent from the mixed style classes, and over 66 percent of those from informal classes.

Classmates seem more anxious than the teacher to elicit evaluations. Over 89 percent of the pupils from formal classes, 78 percent from informal classes, and 70 percent from mixed style classes agreed that their classmates asked for evaluations of work.

With no hesitation, all pupils interviewed from all types of classes agreed that some pupils do harder work than others do. The result of this hard work was rather more in doubt. When asked, 'For doing well in school, is hard work or good luck most important?' 67.0 percent of the pupils interviewed from informal classes, 33.1 percent from mixed style classes, but only 21.7 percent from formal classes agreed that hard work was more important for doing well in school (chi-square=4.105, df=2, nsd). All pupils interviewed did, however, agree that if they tried, they could do the work at school.

SECTION VI. PUPIL EVALUATION OF THE CURRICULUM

A. Ratings of Activities as 'Work' or 'Play'

As Jackson (1968) points out, school first introduces the child

Table 26: Pupil Evaluation of Classmates

	Percent Agreement (Adjusted)						
ITEMS	Style			Building		Chi-Squares	
Pupil Interviews:	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Does (teacher) ever ask if you like someone else's story?	25.0	66.9	55.7	62.6	39.0	0.83	3.55
Does (teacher) ever ask if you like someone else's picture or model?	50.0	59.8	66.5	63.8	53.2	0.05	0.48
Do your classmates ever ask you if you like their work?	89.2	70.1	77.8	77.8	77.2	0.16	1.04
Do some pupils do harder work than others do?	100.0	100.0	100.0	100.0	100.0	----	----

to work (p. 31). Yet play is increasingly advocated as a productive avenue to cognitive development. Bruner (1973, p. 9) asserts that the child needs the opportunity to manipulate, or play with, objects to discover their properties before he is expected to attempt more structured tasks. The Dienes logic blocks provide one concrete example of this principle.

An appropriate balance between work and play in the classroom is difficult to delineate. Play may be totally excluded from the curriculum, being relegated entirely to morning and afternoon breaktime; 'play' may be permitted on those rare occasions when the pupil has finished his 'work'; play may be gingerly included in the curriculum rationalized as 'the child's work'; and finally, play may be considered a crucial tool in furthering the child's learning (Spitler, 1971).

Our own case study in a vertically grouped infant class (Applebee, 1974, pp. 59-65) revealed that by ages six and seven, pupils had a firmly defined sense of 'work' and 'play' conforming to cultural expectations that the 3Rs are 'work' while creative construction is 'play'. The two lines of reasoning pupils used to derive judgments on an activity centred on whether it was 'hard' or 'easy' and whether they were told to do it or could select the activity themselves.

In Study Two we returned to our interest in pupils' evaluation of the curriculum. Twenty-six activities were selected for pupil evaluation on the basis of the activities common to classrooms in Study One. The four pupils interviewed from each of the 30 classes were then asked to rate each activity on a five-point scale from 'work' to 'play'. When all of the activities had been rated, the pupil was then asked 'Why is it work/play?' with reference to three of the activities he had designated as work and three designated as play. Table 27 shows the ratings of the 26 activities. From their responses during the interview, we will build a portrait of their construal of each of the activities.

1. Maths

All of the pupils interviewed agreed that maths was 'work'. Tony A.[1], from an informal, open-plan room, elaborates the common sentiment: "Cause it's hard and you've got a lot to do."

Some activities within maths reflected this characterization while others were more favourably evaluated. Doing sums was considered work by all of the pupils interviewed from informal and mixed style classes and by nearly 86 percent of those from formal classes. Measuring was 'work' for 86 percent of the pupils from formal classes, 83 percent from mixed style classes, and 67 percent from informal classes. Learning how to tell time was only slightly more enjoyable with 70 percent of the pupils interviewed from mixed style classes, 67 percent of those from informal classes, and over 64 percent of those from formal classes considering it 'work'. In a delightful, though unintended, play on words, Colin G., from an informal, open-plan room, explained the grey area:

Colin: Well, it's a bit of work, but a lot of play.
Mrs. A.: And when is it work?
Colin: When you're not used to telling the time and you've got to try to tell the time.
Mrs. A.: And when is it play?
Colin: When you know the time and you don't have to spend too much time on it.

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[1] Pupil comments are verbatim transcriptions from the tape-recorded interviews. Each child was given a pseudonym which remains constant throughout this report.

Table 27: Ratings of 26 Activities as 'Work'

ACTIVITIES	Percent (Adjusted)					Chi-Squares	
	Style			Building			
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Maths	100.0	100.0	100.0	100.0	100.0	----	----
Measuring	85.8	82.7	67.0	87.3	67.7	0.73	1.10
Money	21.7	31.5	33.0	16.8	45.7	1.73	0.31
Sums	85.8	100.0	100.0	93.3	100.0	0.00	3.24
Telling Time	64.2	70.1	67.0	71.1	63.0	0.01	0.08
Reading	60.8	47.3	66.5	47.6	68.5	0.60	0.88
Reading to (teacher)	100.0	70.1	67.0	77.8	76.3	0.12	3.26
Reading with other pupils	21.7	31.5	33.5	22.8	38.2	0.26	0.33
Reading a story silently to self	10.8	38.6	44.3	28.3	39.0	0.05	2.49
Reading topic silently to self	71.7	63.0	67.0	59.0	76.3	0.37	0.17
Listening to a story	46.7	48.8	33.5	29.5	62.2	2.01	0.55
Writing	100.0	100.0	100.0	100.0	100.0	----	----
Writing a story	46.7	78.8	88.7	57.8	93.3	3.11	4.17
Writing in topic booklet	71.7	84.3	77.3	69.3	91.3	1.03	0.49
Handwriting	100.0	100.0	100.0	100.0	100.0	----	----
English/Language	100.0	100.0	88.7	94.0	100.0	0.01	2.46
Social Studies/Topic	71.7	68.5	77.8	69.8	75.2	0.01	0.23
Science	60.8	78.8	88.7	64.4	93.3	2.03	1.89
Growing plants in school	25.0	22.8	44.8	35.5	22.8	0.12	1.36
Caring for pets in school	25.0	14.2	22.2	23.5	14.2	0.03	0.43
Recording weather#	0.0	7.1	56.2	29.4	7.5	1.06	10.75***
Tests	85.8	100.0	88.7	87.3	100.0	0.38	1.83
Art	10.8	17.3	0.0	0.0	24.0	2.34	1.72
Painting	21.7	8.7	0.0	0.0	22.0	1.98	2.33
Sewing	14.2	38.6	22.7	34.9	17.3	0.43	1.63
Model making	21.7	0.0	0.0	0.0	13.3	0.58	5.06

#The significance reported here is probably an artifact of non-occurrence. Nearly 72 percent of the pupils interviewed from formal classes, 54 percent from mixed style classes, and 31 percent from informal classes reported that they did not record the weather. (***p< .005)

Money problems were least frequently considered work. Less than 22 percent of the pupils interviewed from formal classes, 32 percent of those interviewed from mixed style classes, and 33 percent of those from informal classes rate money problems 'work'.

2. Reading

Reading was generally considered more pleasurable than maths, though over 67 percent of the pupils interviewed from informal classes, nearly 61 percent of those from formal classes, and over 47 percent of those from mixed style classes rated it 'work'. Sampling various reading contexts, it was clear that reading to the teacher is most often 'work'. All of the pupils interviewed from formal classes, 70 percent of those from mixed style classes, and 67 percent of those from informal classes consider reading to their teacher 'work'. By contrast, reading with other pupils is least often work: only 34 percent of those interviewed from informal calsses, 32 percent from mixed style classes, and 22 percent from formal classes consider reading with other pupils 'work'.

Whether reading silently to themselves was 'work' or 'play' seemed dependent on the subject area. Reading material for their topic silently to themselves was rated as 'work' by 72 percent of the pupils from formal classes, 67 percent of those from informal classes, and 63 percent of those from mixed style classes. In all classes a story seemed preferable to topic work. Reading a story silently to themselves was considered 'work' by 44 percent of the pupils interviewed from informal classes, 39 percent of those from mixed style classes, but only 11 percent of those from formal classes. Listening to their teacher read a story was rated as 'work' by less than half of the pupils interviewed from each style of class.

3. Writing

The word 'writing' elicited the response 'work' from all the children interviewed. As with maths and reading, however, the subject area meliorates their evaluations. Writing in their topic booklets was considered 'work' by 72 percent of the pupils from formal classes, 84 percent of those from mixed style classes, and 77 percent of those from informal classes. Writing a story was 'work' for 89 percent of those from informal classes, 79 percent of those from mixed style classes, but only 47 percent of those from formal classes.

Handwriting was universally regarded as 'work'.

4. English

English was also acclaimed as 'work' by pupils from formal and mixed style classes, and by 89 percent of those from informal classes. The interview went on to probe: What activities do you do in English? (Table 28). The content of the pupils' responses was analysed tallying each mention in their response separately. Writing and various forms of exercises dominated the pupils' view of English.

Writing stories was the most common form of writing, with the writing of poems mentioned by only 7 of the 120 pupils interviewed. Other types of writing, such as letters, book reports, and news were also included as 'English'. Combining these three categories of writing, we find that the pupils' view of English has a heavier emphasis on writing in the open-plan schools: writing was mentioned 49 times by pupils from open-plan rooms, but only 10 times by those from conventional rooms. We have already noted that writing is considered 'work' by all the pupils interviewed.

The forms of the exercises pupils described varied. According to

Table 28: Pupil Reports of the Activities They Do for English

	Percent of Pupils[1]					
	Formal		Mixed		Informal	
ACTIVITIES	Open (N=4)	Conv. (N=4)	Open (N=8)	Conv. (N=5)	Open (N=5)	Conv. (N=4)
Write stories	43.8	6.3	15.6	15.0	70.0	12.5
Write poems	6.3	0.0	6.3	5.0	15.0	0.0
Other writing	18.8	0.0	21.9	10.0	35.0	6.3
Handwriting	0.0	6.3	0.0	0.0	10.0	12.5
Sentences	43.8	25.0	12.5	12.5	10.0	18.8
Comprehension	12.5	0.0	9.4	5.0	5.0	0.0
Work Cards	0.0	6.3	21.9	10.0	40.0	12.5
Answer questions	18.8	31.3	12.5	25.0	0.0	18.8
Text	31.3	43.8	43.8	40.0	20.0	18.8
Reading	0.0	12.5	12.5	10.0	0.0	12.5
Other[2]	6.3	25.0	12.5	30.0	25.0	56.3

[1] Four pupils were sampled from each of the classrooms.

[2] E.g., crosswords, spelling, 'your sounds', talking, and drawing.

the pupils, a common formal approach to the teaching of usages such as there/their, here/hear, and to/too/two was to 'do sentences' usually from the blackboard. In contrast, teacher-made work cards were more common in the informal classrooms. Answering questions was a component of English according to pupils from all of the groups except those from informal, open-plan classes. Textbooks, presumably filled with a variety of exercises, figured in the description of English given by children from each of the groups, though it was less prominent in the informal classrooms. Combining these categories of exercise descriptions we find them mentioned most frequently as a part of 'English' by those pupils from mixed style classes: exercises were mentioned 34 times by pupils from the formal classes, 26 times by pupils from informal classes, but 52 times by those from mixed style classes.

Reading was infrequently mentioned as a part of 'English' by the pupils.

Barbara V., from a mixed style, open-plan room, crisply summed up one reason why English is work:

> Thinking mostly. Because you've got to think quite a lot when you're doing that kind of thing.

5. Social Studies/Topic

As the reading and writing sections foreshadowed, most children considered social studies, or 'topic' as they more frequently called it, to be work (Table 27, above). Nearly 78 percent of those interviewed from informal classes, 72 percent of those from formal classes, and over 68 percent of those from mixed style classes rated social studies as 'work'.

6. Science

Science was considered work by nearly 89 percent of the pupils interviewed from informal classes, 79 percent of those from mixed style classes, but only 61 percent of those from formal classes. With science, however, some pupils explained that they did not do the subject in their class. Some 9.4 percent of the pupils from formal classes said they did not do science. Looking at the subcategories of science, non-occurrence becomes even more common. Growing plants in school was considered work by 45 percent of the pupils from informal classes, 23 percent of those from mixed style classes, and 25 percent of those from formal classes. Non-occurrence was reported by 16 percent of those from formal classes, 14 percent of those from mixed style classes, and 11 percent of those from informal classes. The opportunities for caring for pets in school vary considerably. Some 75 percent of those from formal classes reported they do not have pets at school; 25 percent reported that caring for pets is work. Over 46 percent of the pupils interviewed from mixed style classes reported that they do not have pets in school; 14 percent considered caring for pets at school to be work. Only a third of those in informal classes reported no pets; over 22 percent considered caring for pets work.

A similar pattern of non-occurrence is reported for recording the weather. Nearly 72 percent of those from formal classes, 54 percent of those from mixed style classes, and 31 percent of those from informal classes reported that they did not record the weather. None of the pupils from formal classes and only 7 percent of those from mixed style classes considered it work. Barbara V. again provided a sensible explanation: "Lots of people like going outside." By contrast, over 56 percent of the pupils from informal classes felt it was 'work'. Tracey U., presented her view:

> Like we were doing a rain gauge. You have to remember to put it out every day, see how much rain there is, and then you have to make a graph of it.

7. Tests

Tests were considered work by all of the pupils in mixed style classes, by 86 percent of those interviewed from formal classes, and by 89 percent of those from informal classes. Some of the informal children were clearly interpreting the word 'test' in at least two ways. Sarah I., from an informal, open-plan class illustrates:

> Sarah: Some tests do work and some tests do play.
> Mrs. A.: Which tests are work?
> Sarah: They do it in bigger classes.
> Mrs. A.: And which are play?
> Sarah: Like testing the weather.

8. Art

Art was generally regarded as play. None of the pupils from informal classes, 11 percent of those from formal classes, and 17 percent of those from mixed style classes rated art as 'work'. In contrast with math, some of the activities within art were considered more like work than was the subject as a whole. Painting was work for approximately 22 percent of the pupils interviewed from formal classes, 9 percent from mixed style classes, and none from informal classes. Sewing, however, was work for nearly 39 percent of the pupils from mixed style classes, 23 percent from informal classes, and 14 percent from informal classes; most found it play. As Colin G., from an informal, open-plan class explains, "Well you enjoy it and you make up designs."

Making a model was considered play by all of the pupils interviewed from mixed style and informal classes, but nearly 22 percent of those from formal classes considered it work.

9. Summary

Pupils nearly unanimously considered handwriting, English, maths, and writing to be work, though some aspects of maths and writing were judged more like play. These pupil evaluations fit the cultural expectations. Differences among the teaching styles and between building types were generally not significant.

B. Pupil Constructs of 'Work' and 'Play'

What reasoning leads a pupil to decide that an activity is 'work' or 'play'? After the child had rated each of the 26 activities along the 5-point work/play scale, he was asked to explain why three of the activities rated as 'work' were work, and why three of those rated as 'play' were play. Analysing the content of pupil responses, 10 constructs were guiding their thought (Table 29).

1. Positive v. Negative Evaluation

Roughly half of the children from each style of classroom used their own evaluation to explain their ratings of activities. 'Fun,' 'like,' and 'enjoy' were commonly used. Writing a story was play "because you enjoy it and it's fun" according to Victor N., from an informal, conventional class. Sophie L., from a formal, conventional class, considered measuring play: "Well it's, sometimes it's nice 'cause you usually manage to get outside and then it's quite fun really." Reading material for her topic silently to herself was negatively evaluated by Elizabeth Z., from a mixed style, open-plan class: "Well, it's not really fun."

2. Choice v. Told

Activities that pupils may choose were considered play while those they were told to do were considered work. Lorene S., from a formal, open-plan class elaborated:

> Because you can just do what you want in painting. Say the teacher tells you to do English; you have to do that certain thing, but you can do what you wanted to do in painting.

Nathan E., from a mixed style, open-plan class, made a fine distinction between types of writing. He rated 'writing' as work because "the teacher tells you to do it and it's very hard to think out what writing you could do about it." But 'writing a story' was play: "Well you could do any story you wanted."

3. Hard v. Easy

Hard aligned naturally with work while easy activities were play. Painting was work for Terence T., from a formal, conventional class, "because it's hard to do. Sometimes you make it too thick and it dribbles down the page." Reading was play for Colin G., from an informal, open-

Table 29: Pupil Constructs of 'Work' and 'Play'

	Mean Percents (Adjusted)[1]								Analysis of Style Effects t-tests (df=24)	
	Style			Building		F-ratios				
CONSTRUCTS	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
+ vs. - Evaluation	53.7	49.6	44.6	53.1	44.1	0.62	0.19	2.35	-0.50	0.03
Choice v. Told	29.0	37.8	36.3	40.9	27.3	2.17	0.32	0.16	0.57	-0.57
Hard v. Easy	40.8	51.8	41.7	46.7	44.8	0.03	0.54	0.51	0.09	-1.08
Long v. Short	9.9	11.2	27.9	19.2	11.5	1.55	3.34*	0.61	2.22*	1.15
Thinking v. Can't	49.8	50.1	63.9	53.0	55.7	0.10	1.14	1.09	1.34	0.87
Don't Do Anything	12.9	17.0	19.5	19.0	13.6	0.57	0.26	1.49	0.73	-0.26
Activity Described	71.9	63.5	91.7	74.0	74.4	0.00	3.67*	0.93	1.70	1.90
Physically Tired	3.3	5.7	5.6	5.8	4.0	0.16	0.11	1.34	0.31	-0.53
Grading, External Motivation	12.8	17.1	0.1	13.0	8.0	1.13	4.89*	0.54	-2.02	-2.23*
Neat, Precise	12.6	7.6	11.1	10.5	9.4	0.04	0.29	0.14	-0.17	0.82
Other	0.7	0.7	1.95	1.0	1.2	1.28	16.81****	0.06	4.76****	3.13***

[1] In this analysis, the percentage of pupils mentioning each construct at all in the course of the interview was tallied for each teacher.

*p< .05, **p< .01, ***p< .005, ****p< .001

plan class: "Well I'm better at reading than some people while they're better at maths and so it seems easier to me."

4. Long, a Lot (v. Short)

Length turned various activities into work, though an activity did not actually attain 'play' status because it was short. Barbara came close:

> You've got to be able to be interested in writing itself. If you're a fast writer it may be all right because you get through it quite quickly, but there's one thing that Mrs. ___ does insist, is if you work fast you make mistakes and you don't do your best writing.

Janet T., from a formal, open-plan class explained that reading to the teacher was work "because you have to read. Sometimes you get awful long words." Writing a story was work for Iain D., from a mixed style, open-plan class, "because the story usually has to be long."

5. Thinking, Concentrating, Learning

Thinking, concentrating, learning, or saying they can't think was a construct that linked solely with work. Keith N., from a mixed style, open-plan class, illustrated the positive end of the construct:

> You have to think a lot about what you're going to write. Think about your spellings, put capital letters in and full stops and do paragraphs. Listen to what the teacher tells you to do in the story.

In its extreme form, the construct became "I can't think of much." Thomas D., from a formal, open-plan class, described writing a story as work: "Cause you don't like to write. I don't. Can't think of much."

6. Don't Do Anything

A construct that linked entirely with play was expressed as 'not doing anything'. Beverley H., from an informal, conventional class described listening to her teacher read a story:

> Well, you're not doing anything. You're just sitting down and just looking at her, instead of you reading yourself. And she explains new words to us.

Raymond N., from a mixed style, conventional class described making models in much the same way: "Well you're not doing work and you're not studying."

7. Physically Tired

Another construct that was only expressed in the negative related to becoming physically tired:

> Well, if you're writing something very long, like dictation, you have to write it quick to keep up with the teacher and it makes your wrist hurt. (Owen T., from a formal, open-plan class)

> Cause when you've been writing for a long time your hand goes all stiff and when you open them, you get a pain. (Richard R., from a mixed style, open-plan class)

Art was work for Patrick O'M., from a mixed style, conventional class, "when me hands get all tired."

8. Specific Activity

Describing a specific activity could lead either to a work or play classification. For Kate L., from an informal, conventional class, growing plants at school was work: "Well you've got to plant them and you've got to get the roots right." Marie J., from an informal, open-plan class, found listening to her teacher read a story play "cause it seems it's so real. Cause he makes like ghosts and that. And he seems like he makes it real."

9. Grading and External Motivation

Activities were considered work or play from the external motivating devices used by the teacher. According to Heidi I., from a mixed style, open-plan room, writing a story was play:

> Well you feel that you can just write what you want and you can write a lot of it if you know what to write on and sometimes the teacher thinks it's very good and you get a star and it's nice and proud.

For Daren N., from a formal, open-plan class, marking implied work: "because you've got to do sums and go out and get them marked, and work right." Frank L., from a formal, open-plan class, used house points to determine both work and play. Writing a story was work "cause you get house points," but measuring was play "cause you don't get house points with it."

10. Neat, Precise

A neat or precise effort entailed work. Art was work for Karl N., from a formal, conventional class, "cause Mr. ____ says do the figures nicely." Writing a story was work for Nicole H., from a mixed style, open-plan class: "You have to try and do it neat."

11. Other Constructs

Examples of the mixture of constructs included under the 'other' category include those relating to social relationships, to humour, and to the distinction between home and school activities.

Alan T., from an informal, open-plan class, considered reading with other children play:

> Cause if you're reading with other children, they're talking to you and you're talking back to them, and that's like playing. Cause if you're by yourself, that's hard work and if you're with some more children, that's like play.

Elizabeth Z., from a mixed style, open-plan class also valued companionship: "Well it's good to paint paintings, and you can talk with your friends when you're painting your pictures."

Humour led to a play classification for listening to her teacher read a story for Sarah I., in an informal, open-plan class, "cause she reads like funny stories and makes you laugh. Everybody thinks that's play."

The demarcation between the activities appropriate to school and to home concerned other pupils. Jessica Y., from a formal, conventional class, considered art play. "Well you have to sort of shape and it's like playing because at home we do it as well--when we've got the things." Reading was work for Ellen K., from a mixed style, open-plan class: "Miss, well it's like work because you're doing something in school."

12. Style and Building Effects

A significant linear Style effect (Table 29) reflects the fact that pupils from the informal classes used the construct 'long, a lot' more than did pupils from formal classes ($p < .05$). Pupils from the informal classes also described a specific activity significantly more ($p < .05$). Constructs referring to external motivation were used most frequently by pupils from mixed style classes, followed by those from formal classes, with only one pupil from an informal class mentioning grading or external motivation (in his case the correcting of sums) ($p < .05$). There were no significant Building or Building by Style effects for the use of any of these constructs.

SECTION VII. GENERAL CONCLUSIONS

Without looking at the specific texts or materials that build a curriculum, we find that there are patterns of organization that distinguish between the formal and informal teachers as well as patterns that are common to all teachers of classes including 8-year-old pupils. Evaluation shows a similar mixture of practices that discriminate and those universally used.

1. In Study One, teachers reported using individual and large group instruction for writing, reading, and numbers with occasional small group work for reading and numbers. The 3Rs dominate the curriculum with social studies and art less frequent though still a common daily feature. Science and drama were rarely reported or observed.

2. From observation of the 12 teachers in Study One it was clear that all of the teachers stress the basic skills though they value a balance of activities. Differences between groups of

teachers were evident in their emphases within the subjects and in the grouping patterns they used. Reading and art were the two areas in which the differences were most pronounced. Simplifying the picture, the formal teachers use reading; the informal teachers teach reading. In art, formal teachers emphasized the product while informal teachers emphasized the process.

3. We have used the term 'framework' to refer to the structure the teachers provide to allow for pupil choice. Framework distinguishes between the formal and informal teachers. From observation of the 30 teachers in Study Two we found that no formal teacher provided opportunities for pupil choice. The informal teachers provided nearly continuous pupil choice in the areas of timing, partners, location, content, activity, and materials. Teachers with mixed styles provided for moderate opportunities for pupil choice of timing, partners, and location, occasional pupil choice of activity and materials, but no pupil choice of content area (discipline).

4. Formal teachers reported evaluating the individual pupil in comparison with his peers; informal teachers were primarily concerned with guiding and assessing individual progress.

5. Fitting cultural expectations, pupil evaluation of activities within the curriculum nearly unanimously acclaims handwriting, English, maths, and writing as 'work'. Art is 'play'. Analysing the content of pupil responses, it was clear that ten constructs were commonly guiding their reasoning:

    positive v. negative evaluation ('fun', 'like', 'enjoy')
    choice v. told
    hard v. easy
    long, a lot v. short
    thinking, concentrating, learning
    don't do anything
    physically tired
    specific activity description
    grading and external motivation
    neat, precise work .

CHAPTER SIX

PATTERNS OF MOVEMENT

> The philosophy of a school is often reflected in the degree of mobility granted to the child.
> (Murrow and Murrow, 1971, p. 184)

SECTION I. INTRODUCTION

The formal teacher presenting a class lesson is likely to consider even slight pupil movement disruptive. The informal teacher who plans a variety of simultaneous activities actively encourages pupil mobility by providing the framework for pupil choice in such areas as working location, working partners, and materials. Purposeful movement is a component part of the informal teacher's view of learning: pupils may enjoy the freedom of movement but are expected to assume the responsibility of furthering their own work (i.e., provisioning themselves) while not disturbing others. Part of their learning involves judging moments that are appropriate to share an experience with classmates and moments when quiet concentration should prevail. Even for the infant school child of 5 to 7 years this is a possible aim, as Lillian Weber (1971) discovered during her year of observing in British schools:

> The children seem to know just what they want to do, where to get the material, how to go about it. The children move with self-assurance, using their school. (p. 63)

Pupil movement is clearly implied in the philosophy of informal education.

There is also a popular belief that pupil movement is an integral part of life in open-plan buildings. The 27 British Columbian teachers interviewed and observed for Allen's (1972) study of open-plan schools claimed that increased socialization and student interaction were valuable features of the open areas; this in spite of the fact that

42 percent of those in the study had not volunteered to be in the newer open-plan schools. Teachers felt that pupils "learn from each other, and...learn best when free to move about" (p. 68). They did insert the caveat that pupils need to be prepared for this freedom.

Lending credence to the assertion that the space sets the tone, in a study of 22 teaching teams in open-plan elementary schools and 11 teachers in conventional rooms, "it seems that open-space structure by itself influences teachers to allow children to move about" (Lueders-Salmon, 1972, p. 61). Her four key measures were 1) the time spent by children in large groups with 10 or more members, 2) the time spent "Waiting, Listening and Passive" (both to indicate the 'inactive' classroom), 3) the time spent in "Educational Games, Cooperative Work, Doing, not in Large Group" and 4) the amount of non-teacher-directed movement (both to indicate the 'active' classroom). Each indicator showed that open-plan schools were significantly more 'active'.

Though some educators may wish that a change from traditional to open settings would lead to a change from traditional to open methods of teaching, in practice the open space may force both the purposefully formal teacher and insecure teachers of various views into a more rigid insistence on the forms of discipline evident from the silent, heads-down posture of their pupils (Sommer, 1969, p. 105).

From various sources, then, informal teachers and open-plan rooms would be expected to foster greater pupil movement.

SECTION II. USE OF SPACE OUTSIDE THE CLASS BASE IN STUDY ONE

In our initial study of 12 teachers, we considered the extent to which teachers used the space outside their own base or class area.[1]

To estimate pupil movement outside the classroom or base area, we calculated the number of minutes when areas outside the base area were also being used without the addition of an extra or specialist teacher (e.g., remedial withdrawal was not included). Time when the entire class moved to another location for some specialist activity such as religious education in the Hall, physical education outdoors, or music in a specially equipped room was not considered.

The results were straightforward. Teachers in conventional classrooms generally limited the children to those rooms while teachers in open-plan rooms used the available space. This difference is statistically significant at the .05 level (F=8.57, df=1;8). Five of the six open-plan teachers used areas outside their base, while only one of the conventional teachers did. Not surprisingly, informal teachers in open-plan rooms used areas outside their bases nearly twice as much as formal teachers did (an average of 98.3 minutes contrasted with an average of 53.3 minutes).

Of the six open-plan schools, four had curtains separating the areas; one had accordian doors; and one had nothing. It is interesting to note that the only school that had no means of visual separation is the only one of the open-plan schools where the children were not observed using the space outside their base area.

To summarize, both building and style differences were clear in the use of facilities. The open-plan teachers made significantly more use of the area outside their own teaching base than did the teachers from the conventional rooms. Within the open-plan group, the informal teachers used the available space for nearly twice as long as the formal teachers did.

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[1] Pupil movement out of the base area was noted in the comment section of the General Patterns of Classroom Activities observation schedule (Appendix I).

SECTION III. TEACHER AND PUPIL MOVEMENT OBSERVED IN STUDY TWO

Movement in the classrooms of the 30 teachers in Study Two was rated globally at the end of the morning and of the afternoon observation periods on a 4-point scale encompassing 'no occurrence', 'infrequent', 'moderate', and 'frequent'. The cut-off point between 'infrequent' and 'moderate' was arbitrarily set so that one or two occurrences constituted 'infrequent' with three or more occurrences considered 'moderate'. Pupil movement was categorized as occurring at the teacher's direction, with the teacher's permission, or at the pupil's discretion. Within each of these three categories, the pupil might be moving 1) to the teacher, 2) within the quadrant[1], 3) within the room, 4) within the building, or 5) out of the building. Thus 15 categories of pupil movement were rated.

On the same 4-point scale, teacher movement categories included 1) remaining at her desk, 2) remaining at the front of the room, 3) moving to individual pupils, 4) circulating among the tables or groups, and 5) supervising outside the room or base. (This was included at the bottom of the Grouping, Framework, and Movement Observation Schedule, Appendix II.)

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[1] Pupil movement within a 'quadrant' was designed to refer to those classes organized as 'learning areas' or 'resource areas' in which all maths equipment is consolidated in one part of the area, the library corner marks off another area for reading and writing, a display frequently designates a third area for topic work, and a fourth area is designed to contain the messier art activities. A pupil might then be allowed to move within his own area, but be discouraged from disturbing children working in other areas.

A. Analysis of Total Movement Scores

Looking first at total pupil scores for movement at teacher direction, with teacher permission, and at pupil discretion, we find that in contrast to Study One there were no significant Building effects: the teachers in open-plan and conventional rooms allowed similar patterns of pupil movement (Table 30). There were also no significant Building by Style effects. Varying patterns of pupil movement were accounted for by the differences in teacher styles and here it was the difference in movement at the pupils' discretion, rather than at teacher direction or with teacher permission, that discriminated among the styles in both the morning and the afternoon.

Movement at pupil discretion was greatest in the informal classes. Out of a possible 20 points in the morning, pupils in informal classes averaged 12.3, those in mixed style classes averaged 10.2, and those in formal classes averaged 7.7 ($p< .001$). This pattern repeated itself in the afternoon.

Total teacher movement during the morning did not discriminate among the styles. In the afternoon, however, the informal teachers (particularly those in the open-plan rooms) were significantly more mobile than the formal teachers (linear Style effect, $p< .01$).

B. Movement Subscores

1. Teacher Movement

We turn now to the five subcategories of these total scores.

Total teacher movement showed no statistically significant differences among the teaching styles during the morning, but was significant at

Table 30: Pupil and Teacher Movement in Study Two

SCORES	Adjusted Means					F-ratios			Analysis of Style Effects t-tests (df=24)	
	Style			Building		B	S	BS		
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	(df=1;24)	(df=2;24)	(df=2;24)	Linear	Deviations
Morning										
Pupil Movement:										
At teacher direction	7.1	6.5	7.1	7.3	6.3	3.59	0.69	1.16	0.11	1.36
With teacher permission	5.4	5.6	5.1	5.4	5.4	0.00	1.04	0.17	-0.70	-1.24
At pupil discretion	7.7	10.2	12.3	10.3	10.0	0.28	23.74****	1.67	6.81****	-0.38
Total	20.1	22.3	24.6	22.9	21.7	1.67	6.22**	1.57	3.49***	0.14
Teacher Movement	11.0	11.4	11.9	11.7	11.2	1.01	0.78	0.91	1.16	-0.09
Afternoon										
Pupil Movement:										
At teacher direction	6.7	7.0	6.9	7.0	6.7	0.65	0.33	1.66	0.49	-0.53
With teacher permission	5.5	6.0	5.7	5.5	6.1	3.80	1.29	2.48	0.38	-1.87
At pupil discretion	7.2	10.4	12.0	10.3	9.7	1.17	19.03****	1.55	5.94****	-1.61
Total	19.3	23.5	24.6	22.8	22.5	0.16	12.23****	2.51	4.53****	-2.01
Teacher Movement	9.8	11.1	11.9	11.3	10.6	1.68	4.10*	4.52*	2.74**	-0.37
Total										
Pupil Movement:										
At teacher direction	13.7	13.5	14.0	14.3	13.0	3.44	0.23	1.91	0.34	0.76
With teacher permission	10.8	11.7	10.8	10.9	11.5	1.66	1.70	1.35	-0.21	-2.05*
At pupil discretion	14.8	20.7	24.3	20.6	19.7	1.14	34.94****	1.85	8.18****	-1.34
Total	39.4	45.8	49.1	45.8	44.2	1.27	14.14****	2.10	5.13****	-1.12
Teacher Movement	20.8	22.6	23.8	23.0	21.8	1.80	2.89	2.68	2.29*	-0.28

*p< .05, **p< .01, ***p< .005, ****p< .001

the .01 level in the afternoon. Though the formal teachers had a similar pattern in the morning and the afternoon, in the mixed style and informal classes there was fluctuation.

Formal Classes

In the formal classes in the morning, half of the teachers were frequently at their own desk and one other teacher was there moderately. Five of the 8 teachers were at the front of the room moderately, while two were frequently there. Moving 'to individual pupils' was rated moderate for one of the formal teachers and frequent for two others. One formal teacher in an open-plan room circulated among the tables moderately. None of the formal teachers supervised outside their room or base area. The afternoon was similar: formal teachers could most often be found at their desk or in the front of the room.

Mixed Style Classes

In the mixed style classes in the morning, again nearly half of the teachers were frequently to be found at their desks; a further three teachers were there moderately. None of the mixed style teachers were frequently at the front of the room during the morning, though 4 of the 13 teachers were there moderately. Over half of the teachers moved to individual pupils moderately while another one did this frequently. Four of the 13 mixed style teachers frequently circulated among the tables or groups; another 3 teachers did this moderately. Two teachers in open-plan rooms supervised activities outside their base area: for one this was a frequent and for the other a moderate activity. In the morning then, mixed style teachers were most frequently found at their desk or circulating among the tables or groups. In the afternoon there was no 'most frequent' position for the mixed style teachers: each of the five categories of teacher movement described the most frequent position for some of the teachers. The pattern for the mixed style teachers in the afternoon was mixed!

Informal Classes

In the informal classes in the morning, a third of the teachers were frequently at their desk, while another teacher was there moderately. One of the nine informal teachers was frequently at the front of the room; one other was there moderately. Moving to individual pupils and circulating among the tables or groups were both done frequently by two teachers and moderately by a further three teachers. One teacher frequently supervised activities outside the base area, while four teachers did this moderately. Like the mixed style teachers in the afternoon, the informal teachers in the morning displayed no unified pattern; a dominant pattern did, however, emerge in the afternoon. None of the informal teachers was frequently at her desk and only one was frequently at the front of the room. Five of the 9 informal teachers frequently moved to individual pupils while a further two frequently circulated among the tables or groups; six teachers circulated moderately. One informal teacher was frequently supervising activities outside the base area while 4 teachers did this moderately. In the afternoon, then, the informal teachers were highly mobile: moving to individual pupils, circulating among the tables or groups, and supervising activities outside their room.

Summary

To summarize, throughout the day formal teachers were most frequently at their desks or in the front of the room. The informal teachers varied in their morning patterns and had a highly mobile afternoon pattern: moving to individual pupils, circulating among the tables, and supervising outside their rooms. The mixed style teachers justified their name, either remaining at their desk like the formal teachers or circulating among the tables or groups like the informal teachers during the morning, and adopting no specific pattern for the afternoon.

2. Pupil Movement

Formal Classes

Examining the categories of pupil movement, we find that in the formal classes in the morning, movement at pupil discretion was directed toward the teacher. Pupil movement within the quadrant and within the room was infrequent and movement within the building and out of the building did not occur. The pattern was similar in the afternoon.

Mixed Style Classes

In the mixed style classes in the morning, movement at pupil discretion was again directed toward the teacher. Pupil movement both within the quadrant and within the room was moderate or frequent for six of the 13 teachers. Movement within the building was moderate for two of the 13 classes. Movement out of the building did not occur. Again the afternoon pattern was similar, though there was some change from the moderate to frequent classification.

Informal Classes

In the informal classes in the morning, as in the formal and mixed style classes, the primary focus of movement was the teacher. In the informal classes, pupil movement to other areas was also common. Movement within the quadrant was moderate in a third of the classes. Movement within the room was moderate or frequent in 7 of the 9 classes. Movement within the building was moderate or frequent in four open-plan rooms. Movement out of the building was moderate in one of the conventional rooms. Movement at the pupils' discretion was slightly augmented in the afternoon.

Summary

In short, in all styles of classes pupils used their own discretion to move to the teacher. For children in formal classes other pupil movement was infrequent. This concurs with the findings of Barcher and Ward's (1975) study of 5 'open education' and 5 traditional classes that the traditional rooms were more sedentary. In the informal classes, movement at the pupils' discretion was common within the room and even within the building.

SECTION IV. TEACHER, OBSERVER, AND PUPIL REPORTS OF PUPIL MOVEMENT IN STUDY TWO

Responses to the teacher questionnaires and the pupil interview (Appendix II) support the observation data.

Responses to items from the Teaching Styles Questionnaire discriminated between the practices of formal and informal teachers. Over 89 percent of the informal teachers agreed that they usually allow their pupils to move around the classroom generally whenever they wish rather than only during certain kinds of curricular activities (Table 31). Under 11 percent of the formal teachers and 28 percent of the mixed style teachers agreed to this freedom of pupil movement ($p< .005$). Approaching from the other direction, all of the formal teachers and 93 percent of the mixed style teachers reported that they expect their pupils to ask permission before leaving the room. Only 55 percent of the informal teachers reported that they expect to be asked first ($p< .05$).

On the Walberg and Thomas questionnaire, over 89 percent of the informal teachers reported that children may voluntarily use other areas of the building and school yard as part of their school time. Only

Table 31: Teacher, Observer, and Pupil Reports of Pupil Movement

ITEMS	Percent Agreement (Adjusted)					Chi-Squares	
	Style			Building			
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Teaching Styles Questionnaire:							
Do you usually allow your pupils to move around the classroom generally whenever they wish rather than only during certain kinds of curricular activities?	10.8	28.3	89.2	51.7	29.2	0.75	12.41***
Do you expect your pupils to ask you permission before leaving the room?	100.0	92.9	55.2	76.6	92.5	0.45	7.65*
Walberg and Thomas Teacher Questionnaire:							
Children may voluntarily use other areas of the building and schoolyard as part of their school time.	50.0	42.5	89.2	75.8	35.8	3.35	5.10
Children are not supposed to move about the room without asking permission.	53.3	17.3	0.0	20.0	24.0	0.03	7.34*
Walberg and Thomas Observation-Rating Scale:							
Children may voluntarily make use of other areas of the building and schoolyard as part of their school time.	0.0	35.4	89.2	57.1	22.5	2.33	14.23****
Children are not supposed to move about the room without asking permission.	89.2	8.7	0.0	26.7	28.7	0.08	20.97****
Pupil Interviews:							
Must children in your class ask permission before they leave their seat to get something they need?	64.2	8.7	0.0	20.0	22.0	0.10	12.63***
Must children in your class ask permission before they leave the room to go to the toilets?	100.0	100.0	66.0	82.0	100.0	1.01	7.95*

*p< .05, **p< .01, ***p< .005, ****p< .001

50 percent of the formal teachers and under 43 percent of the mixed style teachers agreed. Interpreting the word 'voluntarily' to mean that the pupil is either allowed to go without first asking permission or is virtually assured of approval when he does ask permission, the observer agreed that over 89 percent of the informal teachers did let pupils voluntarily use other areas of the building and schoolyard during schooltime, but only 35 percent of the mixed style teachers and none of the formal teachers appeared to allow pupils this freedom of access to other areas.

Within the classroom, over 53 percent of the formal teachers reported that children were not supposed to move about the room without asking permission. Over 17 percent of the mixed style teachers agreed, but none of the informal teachers agreed to this restriction ($p< .05$). From observation it was noted that over 89 percent of the formal teachers made comments indicating they did not expect pupil movement without prior teacher permission. Only one of the mixed style teachers and none of the informal teachers expected pupils to generally ask permission before moving within the room, though clearly it would be considered impolite to wander off if the teacher were reading a story or in some other manner providing a setting in which pupil attention was expected.

Supporting the observer report, during the pupil interview none of the pupils from informal classes and under 9 percent of the pupils from mixed style classes agreed that children in their class had to ask permission before leaving their seats to get something they need (Table 31). Over 64 percent of the pupils from formal classes agreed that they would need to ask permission ($p< .005$). Referring to a frequent reason for going out of the room, all of the pupils from formal and mixed style classes and 66 percent of those from informal classes agreed that children in their classes must ask permission before leaving the room to go to the toilets ($p < .05$). Responses from some of the informal classes differed among the 4 pupils because some informal teachers have found it wisest to withdraw free access from specified pupils, while retaining it for the rest of the class.

Both the teacher and the pupil reports support the observational findings that formal teachers restrict pupil movement while informal teachers generally allow it.

SECTION V. GENERAL CONCLUSIONS

In our initial study of 12 classes, open-plan teachers used the area outside their own base significantly more than conventional teachers used areas outside their room. Within the open-plan group, informal teachers used additional space for nearly twice as long as the formal teachers did.

In Study Two with 30 different teachers, there were no significant differences between teachers in open-plan and conventional rooms in the patterns of movement observed. Neither were there Style differences for total teacher movement during the morning. In the afternoon, however, the informal teachers (especially those in the open-plan rooms) were significantly more mobile than the formal teachers ($p < .05$). Combining morning and afternoon, teacher movement showed a significant linear effect for Style ($p < .05$). Differences in pupil movement were found among teaching styles, coming not from pupil movement at the teacher's direction or with the teacher's permission, but rather from movement allowed at the pupils' discretion. To provide the range of activities they value, informal teachers instruct their pupils in the proper use and storage of materials and then allow purposeful movement at the pupils' discretion. Formal teachers, utilizing more teacher-focussed instruction, discourage pupil movement that might interrupt instruction.

CHAPTER SEVEN

LANGUAGE IN THE CLASSROOM

SECTION I. INTRODUCTION

A. Previous Studies

Traditionally, analysis of language in the classroom has focussed on teacher talk and has been used either to rate teacher effectiveness using such labels as good-poor (Barr, 1929), integrative-dominative (Anderson, 1939), or inclusive-preclusive (Cogan, 1956), or to evaluate the social-emotional climate in the classroom according to whether it tends to be learner-supportive or teacher self-supportive (Withall, 1949). Since 1957, Flanders has been developing a system of interaction analysis which has been widely used both to evaluate the teacher and as a training device leading to self-evaluation. According to Flanders (1970),

> Classroom interaction analysis refers not to one system, but to many systems for coding spontaneous verbal communication, arranging the data into a useful display, and then analyzing the results in order to study the patterns of teaching and learning. (pp. 28-29)

Flanders' Interaction Analysis Schedule, composed of seven categories of teacher talk, two categories of pupil talk, and a tenth category for silence or confusion, divides all talk into either initiation or response. In 1964 he reported a study using interaction analysis, pupil attitude surveys, achievement tests adjusted for initial ability and knowledge, and dependence-proneness tests[1]. He used 15 seventh-grade

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[1] "A student who is dependent is concerned primarily with pleasing the teacher... . Sustained direct influence by a teacher results in increased compliance, and, when this is maintained over an extended period of time, patterns of dependent behavior increase" (Flanders, 1964, p. 222).

(12-year-old) combined English-Social Studies classes and 16 eighth-grade (13-year-old) math classes from the Minneapolis-St. Paul area. Teachers were categorized as Direct, Average, or Indirect on the basis of their ratio of teacher initiation to teacher response for the combined observations. They then taught a two-week unit of study during which time teachers were observed for 6 two-hour periods. Teachers in each content area had access to the same materials, provided in sufficient variety so that each teacher could maintain his natural teaching style.

Flanders' findings were that achievement was significantly higher in the most indirect classes in both Social Studies and mathematics and that the "indirect teachers can be direct, but the direct teachers cannot be equally indirect" (p. 233). In other words, teachers whose behaviour can be categorized as indirect have a larger, more flexible total teaching repertoire.

More recently, interaction analysis has contributed to curriculum planning and evaluation (Gallagher, 1970; Stake, 1970), to teacher training (Medley and Mitzel, 1963; Peck and Tucker, 1973; Willson, 1973), and to the description of classroom practices (Bellack et al., 1966; Garner, 1972).

Bellack et al. (1966) set out to describe pupils' and teachers' linguistic behaviour and to study the relationship of linguistic variables to pupil learning and attitude change, "identifying the distinctive functions language actually serves in the verbal interplay between students and teachers and hence what meanings are conveyed through the words they use" (p. 2). Their unit of analysis was a "pedagogical move". They identified and labelled four moves: structuring, soliciting, responding, and reacting. Grouping by function, structuring and soliciting were considered initiating moves; responding and reacting were considered reflexive. These moves occurred in patterns called teaching cycles. Their data consisted of four tape recorded class sessions by each of 15 teachers in New York high school classes studying Calderwood's International Economic Problems; 345 pupils in grades 10 and 12 were involved. (Class size ranged from 15 to 35 pupils.) The trade-off for accurate description seems to be an inordinate strain on observer effect: the teacher wore one microphone, another one was placed among the students, and a technician sat in the room operating a tape recorder. Foreshadowing our data from formal classrooms, they found a three to one ratio of teacher to pupil talk when lines of transcript were counted and a three to two ratio of teacher moves to pupil moves. Not surprisingly, they found that the teacher usually makes the initiating moves and the pupils make the reflexive moves with the teacher reacting to the responses of pupils. The linguistic behaviour of classes and teachers was remarkably similar among the 15 teachers and classes and between class sessions.

Sinclair and Coulthard (1975) have recently published a method of analysing linguistic aspects of teacher-pupil interaction, developed for the SSRC research project 'The English Used by Teachers and Pupils'. They state clearly, however, that their method of analysis "cannot handle, and of course was not designed to handle, ...pupil/pupil interaction in project work, discussion groups, or the playground" (p. 6). They reiterate the frequent finding that a typical classroom exchange is teacher initiation --> pupil response --> teacher feedback (p. 21).

While earlier studies, notably Flanders (1964) and Bellack et al. (1966), sampled the language practices in classrooms we would classify as formal, American interest in informal education, as exemplified in the literature by British infant schools, led Resnick (1972) to come to a London infant school to begin to delineate teacher behaviour in informal classrooms. Two teachers were each observed for one period lasting approximately two hours; two other teachers in the same school were each observed for two such periods bringing the total to approximately 12 hours of observation. Resnick (1972) explains the pattern of teacher behaviour common to the four classes:

> This pattern consisted of extended substantive conversations with one or a small group of children interspersed with very brief interactions, frequently initiated by children. Children requesting momentary help, information, permission to engage in some activity, or simply recognition of their work, approached the teacher, who repeatedly interrupted her more extended conversations to deal with these momentary needs. (p. 101)

The combination of pupil initiation and teacher acceptance of interruptions was important in maintaining the valued teacher-pupil contact in the informal classroom.

According to Resnick the most striking feature of the data was the predominance of questions from the teacher to the child (p. 108). The hypothesis is posited that by adopting this questioning stance the informal teacher is: 1) modelling inquiry behaviour, 2) communicating a sense of interest in the child's communicative efforts which should not only encourage him to engage in further communication but should also lead to higher self-evaluations, and 3) requiring the pupil to make choices and commitments concerning both the content and manner of his work, hence developing attitudes of involvement and responsibility in learning.

Brandt (1975) came to England in the Spring of 1971 for three weeks of observation in an infant school in N.W. London. He visited in all six classrooms making anecdotal notes, conducting informal interviews, and completing teacher interaction checklists; and he then conducted an intensive study in two of these classrooms using primarily the PROSE (Personal Record of School Experience) observational instrument. With PROSE, the observer focusses on one child at a time for approximately two minutes, coding categories of occurring behaviour and then turns over the sheet to code contextual and behavioural variables. According to Brandt, a cycle of behaviour can be coded for 8 to 12 children an hour even in the mobile open classrooms. He used PROSE continuously for 7 days. Both classes were vertically grouped, including 5- to 7-year-olds, so Brandt focussed observation on a stratified random sample of two boys and two girls at each of the three age levels in each class for a total observation of 24 pupils.

Two of his findings are of particular interest. First, both his PROSE data and the teacher interaction tallies made in three classrooms "confirmed the fact that children initiated contact with teachers more often than teachers initiated contact with children. In one classroom, C-initiated was over three times as frequent as T-initiated interaction" (p. 110). This contrasts with the typical interaction pattern presented in studies of formal teachers (e.g., Bellack et al., 1966) in which the teacher initiates, the pupil responds, and the teacher then provides feedback.

Second, supporting Resnick's (1972) report of the predominance of questions from the teacher to the child, Brandt reports that the dominant teacher activity in one of his two intensively studied classrooms was a listening-questioning pattern (p. 111).

In a large scale descriptive study which was part of a project initiated by the English Committee of the Schools Council, the late Connie Rosen visited schools in 23 authorities from 1969-1971 to observe current favoured practices and collect material showing the range of language used by 5- to 11-year-old children. When the observations of classrooms and the discussions with teachers, Heads, and HMIs were well into the second year, Harold Rosen joined the project to help prepare the final report. This was published in 1973 as The Language of Primary School Children. The book sets the writing and talk of children in a theoretical framework that blends Piaget, Vygotsky, Kelly and others. This framework is perhaps best stated in James Britton's Language and Learning (1970). The transcripts illustrate the primary child learning through talk. As the Rosens put it,

> ...children learn through talk and the way they do this is complex and varied. Three different processes are interrelated, all of which are of intense concern to teachers. Firstly, a child must have experience of language; secondly he must have experience of the world (i.e. non-linguistic experience); thirdly he must be able to organize his thinking so that he makes sense of both kinds of experience. (p. 41)

Their critical analysis of language in the classroom provides the framework for the research presented here.

B. The Focus of This Study

The literature on classroom language use bypasses the 8- to 9-year-old child and is only beginning to sample the informal classroom. As far as we know, the present study is the first attempt to empirically study language usage in classes categorized as formal, mixed, and informal in both conventional and open-plan rooms. Given our limited resources and our primary interest in grouping patterns, this is necessarily an exploratory venture.

Gleaning discriminating variables from the earlier studies, we designed a Language Observation Schedule (Appendix II) that at the most basic level divided talk into initiation and continuation. The initiator of language is by definition assuming the active role; for our purposes, however, continuation should not be considered always indicative of a passive role. For example, as the sequence of interaction on a single topic between two classmates elongates, the mere continuation of the conversation requires active effort by both participants, as the following exchange between two children weighing objects illustrates:

Target Pupil:	I'm using these. (to Small Group) Take 10 out. (to Classmate)
Classmate 1:	Oh, there's more than 10 there.
Classmate 2:	I need 16.
Target Pupil:	You'll never get 16 in that!

Also, the probing teacher question intended to help a pupil clarify or rethink his prior comment would be categorized as continuation since it is provoked by the pupil comment; it could not, however, be considered a passive communication:

Target Pupil:	Miss, what colour is soil?
Teacher:	What colour do you think soil is?
Target Pupil:	Black.
Teacher:	Then black. (Pupil returns to her table.)

The communication was further categorized as Statement, Question, Evaluation, Social, or Not clearly heard. Both the speaker and the intended receiver were categorized as teacher, target pupil, or other classmate; the intended receiver of the communication could also be categorized as small group (composed of 2 to 6 pupils) or large group (composed of at least 13 pupils). A further distinction was made between the objective language that dominates our interactions and the subjective language (Langer, 1962) that reflects the individual's unique formulations of experience.

The vocabulary in the field of classroom language has multiplied rapidly. We have attempted to use practical words with an intuitive base; four words, however, need explicit definition.

Utterance, the smallest unit of analysis, refers to a single coherent expression, varying in length from a single exclamatory word to an entire sentence. Each utterance is categorized as either Initiation or Continuation.

Sequence labels the chain of utterances relating to a single topic, with topic narrowly defined to reflect changes in emphasis within subject matter.

Initiation refers to the commencing utterance. By definition the initiator assumes an active role.

Continuation is the designation used for all utterances following the initiation of that sequence. A continuation may be either active or passive.

The focus on teacher talk seemed appropriate in studies of formal classrooms; in the present study with a range of teaching styles and a dominant interest in the informal classroom, a focus on the language encountered and produced by an individual pupil was selected as most likely to be sensitive to differences in the learning situations encountered.

Four pupils from each classroom were selected by the teacher: a boy and a girl who were quite talkative and another boy and girl who were relatively quiet. The Language Observation Schedule (Appendix II) was designed to focus on one child at a time, recording both the language directed to him and that spoken by him. The teacher was requested to select children who would provide a sampling of the activities occurring in the room during the day. Data were gathered in three-minute periods rotating among the four children. Each child was observed for three periods in the morning and for two periods in the afternoon, providing a record of 15 minutes for each child, or a total of 60 minutes of the language occurring in the classroom. Because the Language Observation Schedule was used in alternation with the Grouping, Framework, and Movement Observation Schedule, the 60 minutes of language recording occurred over a sample of at least

100 minutes of the school day. School assemblies, physical education, and foreign language instruction were excluded.

Focussing on the pupil, our data provide information about the following questions concerning the patterns of language use in formal, mixed, and informal classes in both conventional and open-plan rooms:

> Does the quantity of language differ in classes with teachers of contrasting styles or in the two types of facilities?
>
> How is participation divided?
>
> Who takes the active role and initiates the interaction?
>
> To whom is the interaction directed?
>
> What are the patterns of Questioning and Evaluation in the classroom?
>
> To what extent does subjective language enter the classroom?
>
> How do the observational data mesh with both teacher and pupil reports of language within the classroom?

SECTION II. THE SOURCES OF CLASSROOM LANGUAGE

A. Total Language Scores

A total of 6273 utterances were recorded and analysed. A two way analysis of variance (Building by Style) showed no significant differences for teaching style or for building type during either the morning or the afternoon (Table 32).

Grouping utterances into sequences, we again found no systematic differences for teaching style or building type.

The overall amount of language in which the target pupil was, or was expected to be, a participant was equivalent in these varying classrooms.

Table 32: Total Classroom Language

	Mean Frequencies (Adjusted)									
	Style			Building		F-ratios			Analysis of Style Effects t-tests (df=24)	
MEASURES	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Morning										
Utterances	116.7	123.6	118.2	102.9	142.7	3.95	0.05	1.94	-0.03	-0.61
Sequences	24.6	28.3	28.2	27.2	27.5	0.01	0.58	0.06	0.88	-0.67
Afternoon										
Utterances	88.0	77.1	107.3	75.6	106.6	2.15	0.75	0.39	0.73	0.95
Sequences	17.7	21.2	21.3	18.9	22.1	1.10	0.55	0.19	0.95	-0.45

B. Teacher, Target Pupil, and Classmate Participation

1. Morning

During the morning, the pupil in the formal classroom heard over twice as much teacher talk as the child in the informal classroom. Of the language occurring in the formal classrooms, 45 percent was teacher talk; this dropped to 26 percent in mixed style classes and dropped further to just over 19 percent in the informal classes (Table 33). For the morning the total amount of teacher talk showed a linear and significant ($p< .001$) difference among the teaching styles. Nearly half of the language the pupil was expected to attend to in formal classes was teacher talk while in the informal classes over 80 percent of the language was pupil interaction.

Turning to the literature would seem to suggest that our focus on the pupil may underestimate the total amount of teacher talk in formal classrooms. Adams and Biddle (1970, p. 38) report that the teacher is talking 59 percent of the time while Bellack et al. (1966) report:

> The teacher-pupil ratio of activity in terms of lines spoken is approximately 3 to 1; in terms of moves, this ratio is about 3 to 2. Therefore, regardless of the unit considered, teachers are considerably more active than pupils in amount of verbal activity. (p. 84)

Both Resnick (1972) and Brandt (1975) looked at child-initiation in informal classrooms. Though their samples were small and the pupils were younger, the main barrier to comparison of results is that they both reported more globally than we require. Brandt did, however, indicate the magnitude of child-initiation: "In one classroom, C-initiated was over three times as frequent as T-initiated interaction" (p. 110).

Ignoring teaching style and looking instead at types of room,

Table 33: Percent of Teacher, Target Pupil, and Classmate Utterances

SPEAKER	Mean Percent (Adjusted)[1]					F-ratios			Analysis of Style Effects t-tests (df=24)	
	Style			Building						
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Morning										
Teacher	44.5	25.8	19.3	20.8	39.3	15.00****	8.68***	0.13	-4.04****	1.19
Target Pupil	29.4	36.2	40.7	42.0	27.5	16.78****	2.98	3.17	2.58*	-0.19
Classmate	26.1	38.0	40.1	37.2	33.2	0.85	3.46*	1.10	2.33*	-1.29
	100.0	100.0	100.0	100.0	100.0					
Afternoon										
Teacher	37.6	20.6	23.0	23.3	29.2	0.53	1.59	1.28	-1.29	1.20
Target Pupil	26.7	37.7	36.9	36.0	32.5	0.40	1.43	1.17	1.34	-0.94
Classmate	35.7	41.7	40.1	40.6	38.3	0.33	0.77	1.19	0.73	-1.10
	100.0	100.0	100.0	100.0	100.0					

[1] In this and the following tables, subtotals do not always add exactly to 100 percent because of rounding to one decimal place in tabling results. The discrepancy is never larger than 0.1 .

*p< .05, **p< .01, ***p< .005, ****p< .001

teacher talk distinguished significantly between open-plan and conventional. Pupils in conventional rooms were expected to attend to nearly twice as much teacher talk as were pupils in open-plan rooms (39 and 21 percent respectively, $p < .005$).

2. Afternoon

In the informal and the mixed style classes, afternoon patterns of language use were very similar to morning patterns. In formal classes, however, there was a decrease in the percentage of teacher talk (from 45 percent in the morning to 36 percent in the afternoon) and a corresponding increase in the percentage of classmate utterances. Classes in conventional rooms showed a similar shift away from teacher dominance during the afternoon. As a result, there were no significant Building, Style, or Building by Style effects for the afternoon data (Table 33) though teachers in the formal classes still accounted for 38 percent of the utterances the pupil was expected to hear, compared with only 23 percent in the informal classes.

C. Initiation of Interactions

1. Morning

At the most basic level we classified language as initiation or continuation. The pattern of initiation discriminated among teaching styles and between building types (Table 34).

Looking first at teaching styles, we find that teacher initiation, like total teacher talk, was most prevalent in the formal classes and least prevalent in the informal classes. During the morning, the teacher accounted for 45.9 percent of the initiation in the formal classes, 32.3 percent in the mixed style classes, and 19.0 percent in the informal classes.

Table 3-: Percent of Teacher, Target Pupil, and Classmate Initiation

SPEAKER	Mean Percent (Adjusted)					F-ratios			Analysis of Style Effects	
	Style			Building					t-tests (df=24)	
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Morning Initiation:										
Teacher	45.9	32.3	19.0	20.9	46.5	19.65****	6.31**	0.76	-3.61****	-0.16
Target Pupil	34.2	40.9	37.2	42.5	32.1	4.84*	0.67	3.23	0.63	-0.74
Classmate	19.8	26.8	43.8	36.6	21.5	12.88***	10.30****	0.96	4.24****	1.06
	100.0	100.0	100.0	100.0	100.0					
Afternoon Initiation:										
Teacher	38.6	20.4	24.5	23.1	30.9	0.69	1.30	2.03	-1.04	1.22
Target Pupil	34.0	42.3	34.1	40.0	34.6	0.59	0.71	0.84	-1.05	-1.19
Classmate	27.4	37.2	41.4	36.9	34.4	0.19	1.88	1.58	1.79	-0.58
	100.0	100.0	100.0	100.0	100.0					

*p< .05, **p< .01, ***p< .005, ****p< .001

Considering type of building, teacher initiation again repeated the pattern set for total teacher talk: the teacher accounted for over twice as much of the initiation in conventional rooms as in open-plan rooms (46.5 and 20.9 percent respectively). Both Style and Building showed statistically significant differences beyond the .001 level.

The target pupil initiated interactions more frequently in the open-plan than in the conventional rooms ($p < .05$). There were no statistically significant differences based on teaching style.

Initiation by classmates of the target pupil did show significant differences among the teaching styles and between building types. Complementing the pattern begun by teacher initiation above, classmates were most likely to initiate an interaction in the informal classes and least likely to do so in the formal classes. Classmates initiated 43.8 percent of the morning interactions in informal classes, 26.8 percent in mixed style classes, and 19.8 percent in the formal classes ($p < .001$). Classmate initiated interaction was also more frequent in open-plan than in conventional rooms (36.6 and 21.5 percent respectively, $p < .005$).

2. Afternoon

As in the analysis of total language, the pattern of initiation in informal classes and in open-plan rooms was very similar in the morning and the afternoon. Formal and mixed style classes, as well as those in conventional rooms, showed a decrease in teacher-initiated interactions during the afternoon, and a corresponding increase in the percentage of classmate initiated ones. There were no significant Building, Style, or Building by Style interaction effects for the measures of initiation during the afternoon (Table 34).

SECTION III. THE INTENDED AUDIENCE

A. Receiver of Initiation

The intended receiver of an utterance was categorized as: the teacher, the target pupil, a classmate, the small group composed of two to six pupils one of whom was the target pupil, or the large group composed of at least 13 pupils.

It was anticipated that in the formal classroom whole-class teaching would be the dominant form of instruction. Teacher utterances would thus be directed either to the large group or to a specific pupil within the class context; in both cases all pupils would be expected to be attentive. During the session of seatwork following the class lesson, the individual child would gain teacher attention by queuing. In contrast, it was anticipated that in the informal classrooms, the teacher would have a wider repertoire of grouping practices so that at various points she might be addressing the entire class or an individual pupil within the class context (as the formal teacher does), but she would also direct interaction toward the small group. Attention to individual pupils seemed likely both by pupil queuing and by teacher circulation to groups or tables. There would hence be fewer occasions when all pupils would be expected to listen to the teacher's comments to classmates.

1. Morning

Teacher Initiation

As anticipated, the percentage of teacher initiation to individual classmates and to the large group did distinguish among the teaching styles during the morning. It also discriminated between the building types (Table 35). The target pupil was expected to attend to the most

Table 35: Receiver of Initiations (Part 1)

RECEIVER	Mean Percents (Adjusted)					F-ratios			Analysis of Style Effects t-tests (df=24)	
	Style			Building						
Morning	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Teacher Initiation to:										
Target Pupil	9.1	10.0	8.4	9.3	9.4	0.00	0.09	0.90	-0.08	-0.22
Classmates	14.9	9.2	3.2	4.1	15.2	10.83***	3.50*	1.76	-2.75**	-0.29
Small Group	0.5	0.6	2.0	1.6	0.2	2.70	1.40	0.31	1.36	0.74
Large Group	21.5	12.5	5.4	5.9	21.7	14.33****	4.30*	0.77	-2.99**	0.03
Pupil Initiation to:										
Teacher	5.1	9.0	8.8	7.1	9.0	0.46	0.73	0.09	0.99	-0.67
Classmates	23.1	30.9	28.1	32.1	22.6	5.10*	1.15	3.99*	1.05	-0.82
Large Group	6.0	1.0	0.3	3.3	0.5	0.84	1.19	1.56	-1.36	0.58
Classmate Initiation to:										
Teacher	1.8	1.2	0.9	1.4	1.1	0.27	0.61	2.16	-1.02	0.19
Target Pupil	16.1	20.6	31.8	27.9	16.0	6.54*	3.62*	0.42	2.54*	0.79
Other Classmates	1.5	3.6	7.2	4.9	3.1	1.11	3.27*	0.28	2.45*	0.35
Small Group	0.1	0.1	3.9	2.2	0.0	0.91	1.11	0.88	1.12	0.66
Large Group	0.3	1.4	0.0	0.1	1.4	3.39	1.79	4.04*	-0.45	-2.24*
	100.0	100.0	100.0	100.0	100.0					

*p< .05, **p< .01, ***p< .005, ****p< .001

Table 35: Reciever of Initiations (Part 2)

RECEIVER	Mean Percents (Adjusted)					F-ratios			Analysis of Style Effects t-tests (df=24)	
	Style			Building						
Afternoon	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Teacher Initiation to:										
Target Pupil	2.8	3.9	10.4	3.6	8.0	1.77	1.99	3.43*	1.94	1.16
Classmates	15.5	3.5	4.9	6.5	7.9	0.12	3.19	0.34	-1.93	1.68
Small Group	1.0	0.1	0.9	1.1	0.0	2.28	0.60	0.45	-0.15	0.94
Large Group	19.4	13.0	8.3	11.9	15.1	0.28	1.00	1.85	-1.37	0.02
Pupil Initiation to:										
Teacher	10.1	3.8	6.8	5.9	6.9	0.14	1.82	0.55	-0.98	1.61
Classmates	24.0	37.0	26.3	33.3	26.5	1.12	1.73	0.54	0.81	0.09
Small Group	0.0	0.2	0.3	0.3	0.0	1.29	0.28	0.25	0.67	-0.27
Large Group	0.0	1.3	0.8	0.5	1.2	0.65	0.69	0.59	0.61	-1.16
Classmate Initiation to:										
Teacher	1.7	2.6	0.4	1.0	2.5	1.27	1.00	1.51	-0.79	-1.36
Target Pupil	20.9	26.8	29.9	27.8	24.0	0.45	0.74	1.26	1.22	-0.04
Other Classmates	4.2	5.8	5.8	5.5	5.3	0.01	0.17	2.70	0.35	-0.54
Small Group	0.0	0.0	0.3	0.0	0.2	1.35	1.22	1.55	1.45	0.94
Large Group	0.6	2.1	5.1	2.6	2.5	0.00	0.75	1.63	1.09	-0.03
	100.0	100.0	100.0	100.0	100.0					

*p< .05

teacher initiated interactions with individual classmates in the formal classes, and to the least in the informal classes (linear Style effect, $p < .01$). The difference was more pronounced between building types; teacher initiation to an individual classmate was more frequent in conventional than in open-plan rooms ($p < .005$). Similarly attesting to the use of class instruction, the teacher initiated interaction was directed towards the large group the highest percentage of the time in the formal classes, and the lowest in the informal classes; it was also more common in conventional than in open-plan rooms. Both Style and Building effects were statistically significant beyond the .01 level. The formal class in the conventional room had the greatest incidence of teacher initiated interaction with the large group (29.4 percent); the informal class in the open-plan room had the smallest incidence (1.3 percent).

In the formal classroom language is more public. Britton (1970) reflects on the effect this can have on the child:

> It is an act of faith for a small child to address an adult he does not know; to do so across the silence of thirty-five other children can only magnify the difficulty; add to that the fear of rejection of what he offers and the picture is complete. (p. 181)

We do not mean to imply that class teaching should never occur. The issue is frequency. A child gradually becomes comfortable with an adult through frequent and relatively personal interaction. We suggest that this personal interaction is more likely to occur in the informal classroom though Lewis (1975), in his transcription and analysis of three teachers presenting information to an entire class, reminds us that _within_ the context of formal class instruction, there are varied teacher styles; formal teaching, like informal teaching, is not a single phenomenon.

There were no significant Building or Style differences in the patterns of teacher initiation directed toward the target pupil or toward the small group including this pupil.

Hindsight suggests two reasons why the informal teacher's interaction with the small group is not adequately reflected in the data. First, by focussing on a single child we record none of the interaction the teacher has with small groups that exclude our target pupil. This is not an issue in the formal classroom where all the children are expected to attend to the class lesson. Second, our language coding uses small group as the receiver of the comment only when the utterance is directed toward the entire small group. Frequently the small group context provides the occasion for individual teacher-pupil or pupil-classmate interaction. Small group language is more personal than public, as was recognized by Bullock (1975):

> When children bring language to bear on a problem within a small group their talk is often tentative, discursive, inexplicit, and uncertain of direction; the natural outcome of an encounter with unfamiliar ideas and material. The intimacy of the context allows all this to happen without any sense of strain. In an atmosphere of tolerance, of hesitant formulation, and of co-operative effort the children can 'stretch' their language to accommodate their own second thoughts and the opinions of others. They can 'float' their notions without fear of having them dismissed. Larger and more formal contexts make different demands ... (p. 146).

Target Pupil Initiation

The target pupil was more likely to initiate interactions with classmates in open-plan than in conventional rooms ($p< .05$). The higher incidence of peer communication in open-plan rooms appeared to arise for two reasons. First, the noise level in the open space was often effectively softened by carpets and curtains so that teachers tolerated or encouraged a higher level of interaction than might be conducive to a work atmosphere within a more confined space. Second, in those classes where teachers clearly preferred quiet or silent work, she was often supervising a larger area so that the child in the resource area could have a quick word with his tablemates while the teacher was in the bay area and vice versa. This peer interaction was sometimes instructional:

> No, it's not the same because it's not base 10. So you can get mixed up. But base 6 you do lots of 6.

And sometimes instructive if not instructional:

> Target Pupil: I don't carry the 2. It's easier.
> Classmate: You'll get them all wrong!
> Target Pupil: Won't.

There were no statistically significant differences in the percentage of interaction which the target pupil initiated with the teacher, or with the small or large group.

Classmate Initiation

Classmate initiated interactions with the target pupil and other classmates were most frequent in the informal classes ($p < .05$); classmate initiated interactions with the target pupil were also more frequent in open-plan than in conventional rooms ($p < .05$). Peer interaction in the informal, open-plan rooms was actively encouraged by their teachers.

The percentage of classmate initiated interactions with the other possible receivers showed no systematic pattern. (Though there is a Building by Style interaction effect for classmate initiation to the large group this is probably an artifact of very low frequencies.)

2. Afternoon

During the afternoon, there was only one significant difference among the groups of teachers for the measures of receivers of initiation. This was a Building by Style interaction ($p < .05$) which resulted from a high incidence of teacher initiation toward the target pupil in the informal, conventional classrooms (20 percent) where teachers in three of the four classes were circulating among the groups of pupils querying or commenting on the art or topic work in progress.

B. Receiver of Continuations

1. Morning

The receiver of utterances continuing an interaction was similarly categorized.

Utterances continuing the interaction showed a parallel pattern to those initiating the interaction (Table 36). The target pupil was expected to listen to the teacher continuing an interaction with individual classmates most frequently in the formal classes and least frequently in the informal classes (linear Style effect, $p< .001$). Teacher utterances continuing an interaction with the large group were also statistically significant ($p< .001$), the large group accounting for 19 percent of the continuing utterances from the formal teacher, but only for 2 percent from the informal teachers.

Target pupil utterances continuing an interaction with individual classmates were most likely in informal classes (linear Style effect, $p< .005$) and were twice as common in open-plan as in conventional rooms ($p< .001$).

Deriving from the teacher question --> pupil response pattern in the whole-class context, the target pupil was expected to listen to classmate utterances continuing an interaction with the teacher over four times as much in the formal as in the informal classes, and over three times as often in conventional as in open-plan rooms ($p< .05$). Classmate utterances continuing an interaction with the target pupil

Table 36: Receiver of Continuations (Part 1)

RECEIVER	Mean Percents (Adjusted)					F-ratios			Analysis of Style Effects t-tests (df=24)	
	Style			Building						
Morning	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Teacher Continuations to:										
Target Pupil	9.2	13.0	13.6	11.1	13.5	0.27	0.31	0.12	0.73	-0.28
Classmates	16.9	4.3	2.8	4.0	11.4	6.22*	7.96***	0.65	-3.66****	1.78
Small Group	0.4	0.5	1.1	0.6	0.8	0.18	0.55	1.27	1.05	0.48
Large Group	18.7	4.4	2.1	5.5	10.3	2.35	9.42****	0.71	-3.97****	1.74
Pupil Continuations to:										
Teacher	6.7	6.8	7.4	6.6	7.4	0.09	0.03	1.15	0.31	0.25
Classmates	18.3	25.3	35.0	33.7	16.8	17.80****	5.14**	0.63	3.21***	0.51
Large Group	-0.1	0.9	0.0	0.0	0.9	3.10	1.55	2.13	0.00	-1.41
Classmate Continuations to:										
Teacher	15.2	8.1	3.4	4.1	14.5	5.21*	1.94	0.58	-2.02	0.08
Target Pupil	13.2	26.2	29.6	28.8	17.1	7.60**	4.88*	1.75	3.03**	-0.82
Other Classmates	1.9	6.3	5.1	5.8	3.4	0.89	0.99	0.84	0.85	-1.26
Large Group	-0.3	4.1	0.0	-0.1	4.0	2.59	1.43	1.78	0.00	-1.97
	100.0	100.0	100.0	100.0	100.0					

*p< .05, **p< .01, ***p< .005, ****p< .001

Table 36: Receiver of Continuations (Part 2)

RECEIVER	Mean Percents (Adjusted)					F-ratios			Analysis of Style Effects	
	Style			Building					t-tests (df=24)	
Afternoon	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1;24)	S (df=2;24)	BS (df=2;24)	Linear	Deviations
Teacher Continuations to:										
Target Pupil	8.7	6.8	6.5	6.7	8.0	0.14	0.14	0.26	-0.53	0.18
Classmates	13.0	6.3	6.4	6.4	10.4	0.99	1.12	0.45	-1.24	0.77
Small Group	1.1	0.2	0.4	0.6	0.4	0.37	1.61	0.34	-1.36	1.24
Large Group	15.0	8.2	7.7	9.8	10.0	0.00	0.94	1.52	-1.13	0.70
Pupil Continuations to:										
Teacher	2.0	2.9	6.1	3.3	4.1	0.18	1.42	0.13	1.57	0.63
Classmates	19.8	30.7	32.2	30.0	25.9	0.47	1.51	1.07	1.56	-0.65
Large Group	0.0	0.4	0.2	0.0	0.6	2.48	0.53	0.65	0.50	-1.04
Classmate Continuations to:										
Teacher	13.3	5.3	7.9	6.9	9.9	0.63	1.47	1.04	-1.04	1.28
Target Pupil	18.4	27.3	22.7	26.4	19.9	1.54	1.00	0.94	0.64	-1.11
Other Classmates	5.9	9.7	5.0	6.4	8.4	0.47	1.01	0.34	-0.26	-1.42
Large Group	3.0	2.0	4.9	3.7	2.5	0.11	0.24	1.28	0.34	0.28
	100.0	100.0	100.0	100.0	100.0					

showed the complementary pattern: they were most common in the informal classes where peer interaction was encouraged, and were also more frequent in the open-plan rooms ($p < .05$).

2. Afternoon

There were no significant differences among the groups of teachers for receiver of continuations during the afternoon.

C. Talking to Himself

Though it was not common and there were no statistically significant differences in the frequencies with which pupils talked to themselves, from an educational viewpoint it is interesting to note the types of situations in which children do verbalize to themselves. Perhaps the most typical situation involves talking through a difficult problem as Irene N. (a pupil in a mixed style, open-plan room) did five consecutive times while she worked on maths before she turned to one of her tablemates: "I'm stuck on this one."

A second function of talking to oneself involves keeping track of one's place in a sequence. Examples observed included water capacity, weighing, and measuring.

A third function sees the pupil using himself as audience. Beth G., a pupil in an informal, open-plan room, had been writing for several minutes and clearly felt the need to hear what she had written: "Yesterday our school went to the... ."

Very occasionally, the observer has the opportunity to hear the child achieve some insight. Kevin V., in a mixed style, open-plan room, was reading reference materials relating to an integrated history/maths unit on shopping. The group's quiet concentration was broken by his "An advantage--yeh!" And he immediately initiated an explanatory statement sharing his insight, "You lot, they didn't have... ."

In spite of its lack of statistical significance, it may be worth noting that in the conventional rooms, mean frequency for the pupil talking to himself ranged from 0.20 to 0.25 for the three teaching styles; in the open-plan rooms, however, the mean frequency for the pupils in mixed style classes was 11.1 utterances. Though noise is often cited as a disadvantage of open-plan architecture, the background murmur seems to provide a setting conducive to this form of working through language.

SECTION IV. TYPES OF LANGUAGE OBSERVED

A. Patterns of Questioning and Evaluation

Language functions were categorized as Statement, Question, Evaluation, Social, or Not clearly heard. Our Social category was narrowly defined to include interactions such as greetings and inquiries about family that indicate a concern for the child's social life in contrast to cognitive development. We did not attempt the high-inference classification of peer conversations as task-oriented versus social. By gathering the language data during the first hour in the morning when such academic areas as reading, writing, and number work were in progress and again during the first 40 minutes in the afternoon when activities such as topic work and/or art were underway, we did not encounter the type of social interaction that a period such as the beginning of the day might have produced. Consequently there were no instances of social talk as we had defined it.

Because of the mobility the observer was allowed in the classroom, and also perhaps because of the public nature of the classroom itself, there were only 87 instances of 'Not clearly heard' out of the total 6273 utterances recorded. In each instance both the speaker and the intended receiver were clear, though the content was not clear. These 'not clearly heard' utterances could, therefore, still be used in the calculations for initiation and intended receiver.

Though the figures vary slightly, the patterns of Statement, Question, and Evaluation were parallel in the morning and the afternoon (Table 37).

In general, interactions were most likely to be initiated by Statements. Questioning was the second most frequent form for initiations; however, initiating questions were used nearly twice as frequently by the teacher as by the children. Evaluation, which usually represents a reaction to a line of reasoning or piece of work, was rarely used to initiate interaction.

The pattern for utterances continuing an interaction was similar, though Statements were used even more frequently. They accounted for over 85 percent of both target pupil and classmate continuing utterances, and 56 percent of those from the teacher. Questions accounted for over 15 percent of teacher continuing utterances, compared with from 7 to 9 percent for the target pupil and his classmates. Establishing the teacher's role as the evaluator, a quarter of the teacher comments continuing an interaction were Evaluations. Target pupils and classmates rarely used Evaluation; it was the teacher's prerogative.

Resnick (1972) and Brandt (1975), in studies discussed earlier, both suggested on the basis of observation in informal British classrooms that informal teachers are likely to use a high proportion of questions in their teaching, and that this in turn provides a model that should lead to more questioning by the pupils. Taking a higher proportion of questions in informal classrooms as an hypothesis, the data from the present study provide some support for their hypothesis. Teachers

Table 37: Statements, Questions, and Evaluation

	Mean Percent		
Morning	Teacher	Target Pupil	Classmate
Initiation:			
Statement	48.2	63.6	66.1
Question	49.2	34.7	32.8
Evaluation	1.1	0.3	0.6
Not clearly heard	1.5	1.4	0.5
	100.0	100.0	100.0
Continuation:			
Statement	62.5	86.5	86.1
Question	17.9	8.8	7.7
Evaluation	17.5	1.9	3.1
Not clearly heard	2.0	2.9	3.1
	100.0	100.0	100.0
Afternoon			
Initiation:			
Statement	54.1	68.4	67.1
Question	42.2	29.8	31.6
Evaluation	3.7	1.3	1.3
Not clearly heard	0.0	0.5	0.0
	100.0	100.0	100.0
Continuation:			
Statement	61.0	88.9	87.3
Question	12.7	7.7	6.8
Evaluation	22.4	1.9	1.8
Not clearly heard	3.9	1.5	4.1
	100.0	100.0	100.0

N=30 classes

during the morning in informal classrooms used questions to continue interactions 26.4 percent of the time, compared with 12.4 percent in the formal classrooms (linear Style effect, t=1.91, df=24, $p < .05$ one-tailed). The afternoon pattern was similar, with 5.0 and 20 percent of teacher questions in formal and informal classrooms respectively (t=1.81, $p < .05$). Though using a lower percentage of questions than teachers did overall, target pupils used questions to continue interactions in which they were involved 3.8 percent of the time in formal classes compared with 11.8 percent in informal classes during the morning (linear Style effect, $t=2.18$, $df=24$, $p< .01$ one-tailed). Patterns for classmates were similar, with 3.4 and 10.0 percent for formal and informal classes respectively ($t=1.90$, $p< .05$). Afternoon patterns for pupils, as well as patterns of initiation for all of the participants, showed no significant differences among the styles.

In summary, all classroom participants used Statements both to initiate and to continue interactions. For the children in the classroom, Statements were the dominant form. Teachers used Questions more frequently than did children, and most markedly for initiation. Questions were used more frequently in the informal classroom. Evaluation was rarely used by children; teachers used Evaluation during the course of interaction, not for initiating the sequence.

B. Subjective Language Use

Subjective experience, as Langer (1962) distinguishes it, originates within the child and is unique to him. This is an interesting, yet in classrooms, quite rare occurrence. Of the total 6273 utterances recorded and analysed only 217 were subjective. This dearth of subjective expression is disappointing rather than surprising. Complementary findings were noted by Adams and Biddle (1970):

> In fact less than half of one percent of the time was spent on matters that dealt with feelings and interpersonal relationships. Flanders...produced similar findings. (pp. 40-41)

Not wishing to exaggerate the magnitude of this subset of language, the average frequencies will suffice for the numeric presentation (Table 38).

This is the sort of expression that indicates an individual sensitively considering his environment. "I don't think--" is one common subjective marker. Often though the thought is implied.

Table 38: Use of Subjective Language

	Mean Frequencies		
	Formal (N=8)	Mixed (N=13)	Informal (N=9)
Morning	1.8	4.5	4.3
Afternoon	2.5	3.6	3.8

During a spelling assignment in a mixed style, open-plan class, Kenneth C. initiated this exchange with a classmate:

Kenneth:	I like that word.
Classmate:	It's stupid.
Kenneth:	It's fun.

Writing about a recent outing, Diane Y. inquired,

Diane:	How do you spell ......?
Classmate:	That's not a real word.
Diane:	Was it right then?
Classmate:	Oh, just leave it.

Not the final advice a teacher would be likely to give, but her classmate showed awareness of an interesting query: what does make a word 'real' or 'right'? These interactions provide evidence of an interest in and enjoyment of words such as teachers hope to foster.

Working on her math in an informal, open-plan class, Karen A. evaluated her work and succinctly explained her understanding of computation in others bases:

> This is a waste of time, this method. You just have to add them up. 10 + 10 is really 12.

Trying first to produce a scale by filling bottles with varying amounts of water and then to compose some simple tunes, Davina V. was judged by her classmate and defended her interpretation.

Classmate:	You did it too fast!
Davina:	I liked the rhythm.

Subjective language, illustrating the individual's personal discoveries, is an important, if infrequent, aspect of language experience.

SECTION V. TEACHER, OBSERVER, AND PUPIL REPORTS ABOUT LANGUAGE IN THE CLASSROOM

In most informal classrooms pupils were allowed to talk spontaneously; in most formal classrooms they were expected to be quiet most of the time. Responding to the Teaching Styles Questionnaire (Bennett, 1976), over 78 percent of the informal teachers, in contrast with only 25 percent of the formal teachers, stated that they generally allow their pupils to talk to one another usually whenever they wish rather than only during certain kinds of curricular activities (Table 39). Supporting this, 75 percent of the formal teachers, in contrast with 11.3 percent of the informal teachers, reported that they expect their pupils to be quiet most of the time ($p < .01$). The response was similar though less emphatic for items from the Walberg and Thomas (1971) Teacher Questionnaire. There was a linear trend among styles in response to the statement, "I prefer that children not talk when they are supposed to be working" with 64.2 percent of the formal teachers, 48.8 percent of the mixed style teachers, and 22.2 percent of the informal teachers agreeing. The observer's report on the same item augmented the difference: all of the formal teachers, 30 percent of the mixed style teachers, and only 10.8 percent of the informal teachers indicated by comments to the pupils that they preferred that children not talk when they were supposed to be working.

The pupil interviews indicated that children are not deterred by requests for silence. Some 89.2 percent of the pupils interviewed

Table 39: Teacher, Observer, and Pupil Reports of Classroom Talk

	Percent Agreement (Adjusted)						
ITEMS	Style			Building		Chi-Squares	
	Formal (N=8)	Mixed (N=13)	Informal (N=9)	Open (N=17)	Conv. (N=13)	B (df=1)	S (df=2)
Teaching Styles Questionnaire:							
Do you usually allow your pupils to talk to one another usually whenever they wish rather than only during certain kinds of curricular activity?	25.0	44.1	78.3	63.8	30.3	2.09	5.07
Do you expect your pupils to be quiet most of the time?	75.0	70.1	11.3	53.1	54.7	0.08	9.36**
Walberg and Thomas Teacher Questionnaire:							
I prefer that children not talk when they are supposed to be working.	64.2	48.8	22.2	36.8	55.5	0.42	3.16
Children are expected to do their own work without getting help from other children.	71.7	54.3	55.2	47.0	75.2	1.39	0.70
The children spontaneously look at and discuss each other's work.	75.0	91.3	89.2	93.3	77.2	0.55	1.21
Walberg and Thomas Observation-Rating Scale:							
Teacher prefers that children not talk when they are supposed to be working.	100.0	29.9	10.8	42.9	42.8	0.14	15.32****
Children are expected to do their own work without getting help from other children.	100.0	45.7	21.7	48.3	59.0	0.04	10.92***
The children spontaneously look at and discuss each other's work.	28.3	100.0	100.0	86.7	73.3	0.20	19.49****
Pupil Interviews:							
May children in your class talk quietly with the people beside them?	89.2	91.3	100.0	100.0	84.7	0.87	0.95
May pupils ask questions? (to the teacher)	100.0	100.0	100.0	100.0	100.0	----	----
Do you ask questions?	100.0	84.3	100.0	94.6	91.3	0.14	2.87
Do you ever ask your classmates questions when you're working?	75.0	70.1	67.0	71.1	69.7	0.10	0.13

*p< .05, **p< .01, ***p< .005, ****p< .001

from formal classes, 91.3 percent of those from mixed classes, and all of those from informal classes agreed that children in their class may talk quietly with the people beside them. Several of the children, however, did appear aware of the restrictions to talk. Qualifications included volume and context:

> If we whisper we can. (Jeremy D. in a mixed style, open-plan room)
>
> Well, if they talk quietly, yes. (Eric V. in a mixed style, conventional room)
>
> Not in tests. (Liam H. in a formal, conventional room)
>
> Yes, but when the teacher says, 'Be quiet,' you've got to be quiet. (Robert N. in an informal, open-plan room)
>
> Ah, well, sometimes she minds and sometimes she doesn't. (Beverley H. in an informal, conventional room)

Determination of how task-oriented peer conversations are expected to be would be difficult from report data. Nearly three-quarters of the formal teachers and over half of the mixed and informal teachers agreed to the Walberg and Thomas item that "Children are expected to do their own work without getting help from other children." Most of the teachers, however, agreed that "the children spontaneously look at and discuss each other's work." These items appear to be in contradiction. It may be that teachers were making a distinction relating to subject areas; for example, teachers may have felt that the math answer should be the child's own work while the picture or the poem would be valid objects for peer discussion.

Parallel items on the Walberg and Thomas Observation-Rating Scale illustrated sharper differences among the groups of teachers based either on comments they made during the day to pupils or on informal interviews between the teacher and the observer. The observer reported that all of the formal teachers, but under 22 percent of the informal teachers, indicated that children are expected to do their own work without getting help from other children ($p < .005$). Adopting a middle position, just under 46 percent of the mixed style teachers expected pupils to work without peer help. All of the informal and mixed style teachers, but only 28.3 percent of the formal teachers, were observed to allow children to spontaneously look at and discuss each other's work ($p < .001$).

As we would hope, all of the pupils interviewed agreed that pupils *may* ask questions to the teacher. Further, all of the pupils interviewed from both formal and informal classes and 84.3 percent of those from mixed style classes agreed that they *did* ask questions. The majority of children also agreed to the statement, "Do you ever ask your classmates questions when you're working?" A common concern was voiced by Thomas D. from a formal, open-plan room, "Miss, yes, how to spell." To remind us how literally questions are interpreted, Victor N. from an informal, conventional room explained,

> Well, not while you're working. You'd have to stop. Well, if you can concentrate on two things at the same time, yes. So you could be writing and also at the same time someone could be talking to you and then you could talk back to them.

SECTION VI. GENERAL CONCLUSIONS

Our exploratory study of language in 30 classrooms containing second year junior pupils (8-year-olds) leads to the following general conclusions:

1. The overall amount of language in which the target pupil is, or is expected to be, a participant is equivalent in these varying classrooms.

2. Pupil talk is more highly valued by the informal than by the formal teacher. In most informal classrooms, pupils are allowed to talk spontaneously; in most formal classrooms they are expected to be quiet most of the time. Nearly half of the language the pupil is expected to attend to in the formal classes is teacher talk while in the informal classes over 80 percent of the language is pupil interaction.

3. Teacher initiation is most frequent in formal classes, least frequent in informal classes; complementarily, classmate initiation is most frequent in informal classes and least frequent in formal classes. Affirming the prevalence of class teaching, teacher initiation to the large group and to individual classmates is most frequent in formal classes.

4. Teacher initiation is more frequent in conventional than in open-plan rooms; classmate initiation is more frequent in open-plan rooms.

5. Questions are asked by all participants, but noticeably more so by teachers than by pupils, and somewhat more frequently in the informal than the formal classrooms.

6. Evaluation is rarely used by children; it is the teacher's prerogative.

7. In general the afternoon language environment does not discriminate among the teaching styles or the building types. The main effort to teach reading, writing, and mathematics occurs during the morning; and the different approaches taken to the teaching of these subjects leads to different patterns of interaction. The afternoon is generally devoted to activities such as topic work for science and/or social studies and to art; the approaches taken with these sorts of activities are more similar, and lead to less difference in the accompanying pattern of verbal interaction.

CHAPTER EIGHT
TEACHING STYLES AND TEACHER PRACTICES

SECTION I. OVERVIEW OF THE STUDY

A. Aims and Approaches

The educational literature continuously depicts the classroom in such generalized dichotomies as direct/indirect, teacher-centred/pupil-centred, traditional/progressive, and formal/informal, perhaps because the classroom has been used as the unit of analysis and general patterns can be seen which link allied teacher practices. These descriptors have not, however, proven as useful as might have been hoped because the meaning of any given term too easily changes in the context of the complexity of the classroom. We have tried in this study to divide this general concept of teaching style into some of its component parts.

Our primary aim was a concrete, intuitively sensible unit of analysis that would be easily manipulable for both the practitioner and future researchers.

Though other areas may also provide useful discriminators, analysis of the literature led us to select two aspects of the classroom which seemed especially likely to suggest practical applications: group membership and pupil choice. In the classroom, group membership includes at the most fundamental level two dimensions: 1) the size of the pupil group and 2) whether or not the teacher is an active participant in the group. Our operational measure of pupil choice was an observation of the 'framework' the teacher provides for pupil choice in six subcategories: timing, location, partners, content (or discipline), activity within a discipline, and materials.

Both grouping patterns and pupil choice have many implications. We studied some of these by looking at curriculum organization and evaluation, movement, and language (Chapters 5, 6, and 7).

We found it possible to formulate some simple general indices of classroom activity. First, the Uniformity Ratio calculated as the ratio of the number of activities the pupil is required to participate in to the number of activities occurring. A Uniformity Ratio of 100 percent would indicate an extremely formal class in which every child was required to do every activity, beginning and ending each lesson in unison: a day of class teaching. A second index may be calculated from the instances or minutes of 'single task', occasions when the entire class is expected to do the same assignment with the expectation of identical outcomes (e.g., math problems and spelling lists). A high score on this measure again indicates a formal style. A high score on the third index indicates an informal style: the frequency or duration of three or more simultaneous activities. Each of these three measures is easy to calculate from observation and has pointed to significant differences among our samples of teachers.

Because of the complexity of the area selected for study, a multi-faceted research design using teacher questionnaires, observation, structured pupil interviews, and informal teacher-observer conversations was chosen. The Teaching Styles Questionnaire (Bennett, 1976) and the Walberg and Thomas (1971) teacher questionnaire and observation-rating scale were selected to validate the observer's classification of teachers against instruments for which published data are already available in both the British and American contexts. A series of other instruments were designed, piloted, and modified to study areas of specific concern (Chapter Two).

B. Validity and Reliability

At the conclusion of a full day of classroom observation plus discussions with both the class teacher and the Head Teacher, teachers were rated formal, mixed, or informal on the basis of the subjective judgment of the observer, who is also a teacher with experience in American and British schools with pupils spanning the 5- to 11-year-old primary school range. This classification based on observation was validated by the teachers' responses to the Teaching Styles Questionnaire (Bennett, 1976) which showed a significant discrimination between the groups of teachers ($p< .01$ in Study One and $p< .001$ in the larger sample of Study Two). The converse is also true: teachers' responses on the questionnaire were supported by observation. This seems to suggest that the carefully constructed and piloted teacher questionnaire can accurately distinguish among teachers of differing styles; and clearly teacher questionnaires are less demanding than observation in terms of time, personnel, and money.

The Walberg and Thomas (1971) teacher questionnaire and observation-rating scale are parallel 50-item instruments. The correlation between the teacher and observer responses on a total score calculated from these measures was .78, reflecting the fact that the pattern of ratings by observer and teacher was usually similar, even though the teachers' ratings were often less extreme.

Using transcripts of language from primary classes (Rosen and Rosen, 1973, pp. 44-48), there was a 90 percent agreement between the investigator and an assistant on the classification of utterances. Most of the disagreement was caused by the difficulty in assessing the intended audience from transcripts in which there are few context clues and no visual clues.

C. Teacher as Researcher

Teachers were asked to assume the role of the researcher to provide a four-day sample of activities in their classroom by following the activities of one pupil throughout the day using the Individual Pupil Schedule (Appendix I). This instrument was designed so that a single tick supplied information on the content area the pupil was working in, the size of the group, and whether or not the teacher was actively participating in the group. A different pupil was followed on each of the four days. After practice during the morning of the day of observation, the afternoon session was used to calculate reliability on the instrument. There was 85.6 percent agreement between observer and teacher (Holsti, 1969). The Individual Pupil Schedule thus appears to be a reliable and inexpensive research instrument.

Asking the teacher to assume the role of researcher makes it possible to collect data over a longer period of time than resources would allow the observer to be present in the classroom. Several of the teachers also found it a provocative exercise that sensitized them to the classroom from the individual pupil's viewpoint rather than from their usual teacher's perspective of planning and preparing for the entire class.

D. Samples

In order to maximize the contrast among teaching styles as much as possible, formal and informal teachers were initially considered. Since open-plan buildings are a feature of current educational controversy, we also looked separately at classes in open-plan and conventional rooms.

The sample for the initial exploratory study included 12 teachers:

	Formal	Informal	
Open-Plan Rooms	3	3	6
Conventional Rooms	3	3	6
	6	6	12

Study Two considered 30 different teachers, including a group of teachers whose style could best be described as "mixed":

	Formal	Mixed	Informal	
Open-Plan Rooms	4	8	5	17
Conventional Rooms	4	5	4	13
	8	13	9	30

SECTION II. TEACHER PRACTICES

In the preceding chapters the results from the various instruments have been presented clustered by the areas of interest in the study: grouping practices, curriculum organization and evaluation, movement, and language (Figure 1, p. 75). In this chapter we will attempt to reformulate the conclusions to provide a more unified portrait of formal and informal classrooms as they emerged from our studies.

A. The Formal Class

A major grouping in the formal class was the teacher with the entire class. This had important implications both during the class lesson itself and also for the following activities.

During the lesson itself, texts and materials were supplied in class sets. The teacher initiated verbal exchanges, directing them to either the large group as a whole or to individual children within the class context. Pupil talk was solicited in response. Most of the time pupils were expected to be quiet. Pupil movement was not permitted. Teacher movement was generally confined to the front of the room or to their own desk.

Following the class lesson, no framework for pupil choice was provided. Pupils generally worked individually without active teacher participation on a task set for the entire class. In some classes pupils could leave their seats at their own discretion to go to the teacher, though going to other areas in the room was generally forbidden unless the pupil asked permission before leaving his seat. All formal teachers expected their pupils to ask permission before leaving the room to go to the toilets.

The formal teacher decided where her pupils would sit. Most reported that their pupils remained in the same seats or groups for most of the day.

Groupings smaller than the entire class were used, though this was relatively infrequent. Approximately half of the formal teachers used ability groups, frequently using test results to group for reading and/or maths. (Ability grouping may still result in a single assignment for 30+ pupils if teachers combine groups from different classes as they did in some of the formal, open-plan classes in our sample.) The smaller groups used by formal teachers did not involve pupil planning or problem-solving, but rather seemed designed for organizational convenience: the sharing of books and equipment or the structuring of the morning so that one group at a time would receive concentrated teacher attention while the others could get on with their own work. All of the pupils interviewed from formal classes agreed that when they had small groups, it was the teacher who decided who was in the group.

The differences between grouping practices of formal and informal teachers were most evident in the morning when academic work tended to prevail. For the formal teachers, academic achievement was a top priority. The usual approach was to present information to the class as a whole, followed by an assignment to be done individually. Pupils with difficulties went to the teacher for help.

B. The Informal Class

It was clear from both teacher responses and observation that informal teachers structured a more complex network of activities, often providing for several different sorts of groupings to occur simultaneously. At any given point in the day it was common to find some pupils working individually, some in small groups, and some in larger groups. Tasks were sometimes set by the teacher, sometimes selected by the individual pupil, and sometimes evolved from pupil planning within a small group. In all classes observed, most children were sitting in groups of 3 or more. In the informal classes, children had usually selected at which table they would work and with which partners. Most informal teachers reported that pupils voluntarily group and regroup themselves during the day. Grouping by ability was rare. Though class teaching was used by all teachers, it was least used by the informal teachers.

Totally free pupil choice did not occur; rather, informal teachers provided a framework within which pupils had nearly continuous opportunities to decide matters relevant to their learning activities. Thus, as pupils were able to accept more responsibility, teachers had various avenues available to provide it (Brown and Precious, 1968, p. 124; Muir, 1970, p. 18). Conversely, when pupils demonstrated that the choice was too much of a challenge for them, the teacher could limit the available choice without discontinuing it altogether for that particular child and without influencing the options still available to classmates.

One implication of both simultaneous activities and pupil choice was that movement increased. Though there was no dominant pattern to the informal teachers' movement during the morning, in the afternoon they were highly mobile: moving to individual pupils, circulating among the tables or groups, and supervising activities outside their room. Pupil movement at their own discretion was greater in the informal than in the formal classrooms both during the morning and during the afternoon; again the primary focus was the teacher, but movement at the pupils' discretion was also commonly observed within the room and even within the building. Most of the informal teachers reported that they usually allow their pupils to move around the classroom whenever they wish, and also that children may voluntarily use other areas of the building and schoolyard as part of their school time. None of the pupils interviewed from informal classes reported that children in their class had to ask permission before leaving their seats to get something they need.

A second implication of simultaneous activities and pupil choice was that the pattern of language in the classroom changed. Pupil talk was more highly valued by the informal teachers, and in most informal classrooms, pupils were allowed to talk spontaneously. Observation found that in the informal classes over 80 percent of the language the pupil was expected to attend to was pupil interaction; working individually and in small groups apparently encouraged peer interaction. Suggesting that the informal class actually does foster inquiry, questioning by all classroom participants was somewhat more common in the informal classrooms.

C. Morning/Afternoon Differences

In general the morning was used to teach the 3Rs while the afternoon was devoted to topic work and creative expression. This finding has two specific manifestations in our data. First, the afternoon language environment does not generally discriminate among the teaching styles or the building types. The main differences in language patterns occur during the morning when teachers are concentrating on reading, writing, and mathematics. Second, teacher movement shows its most distinctive pattern in the afternoon when the informal teachers are highly mobile: moving to individual pupils, circulating among the tables and groups, and supervising activities outside their room.

D. Building Design

Building design was rarely a significant factor in teacher practices especially as compared with teacher attitudes. Reasons for the building of open-plan schools have been variously attributed; in a survey of 27 local education authorities, advisers and architects suggested that 1) the open-plan school was the only purposeful way of building for the integrated day, 2) open-plan schools could optimise the use of space, and 3) the traditional school could not be built within the existing cost limits (Bennett, Andreae, Hegarty, and Wade, 1976, p. 53). The economic argument is not clearcut. Some suggest that it costs less to build a school without walls (Brunetti, 1971, p. 4; National Union of Teachers, 1974, p. 9). Just as confidently, others assume that open-plan schools cost more (Ellison, Gilbert, and Ratsoy, 1969, p. 20). Fittings within the school provide one key to the dispute. At least part of the argument seems based on the definition of what Anderson (1970, p. 3) referred to as "absolute necessity"; carpeting, for example has been considered essential to some American and Canadian authorities, but has only recently become a standard feature of learning areas in

British open-plan schools. Most advocates of informal education would argue that the building and the accoutrements, though facilitating informal education, are not essential to it (Brubaker et al., 1971, p. 45).

The facilities did, however, make some difference in the types of groupings used. The small group with the teacher was significantly more common in open-plan than in conventional rooms and as one implication of this, three or more simultaneous activities were also significantly more common in open-plan than in conventional rooms. Formal teachers in open-plan rooms seemed to react by setting a single task for the entire class.

The proportion of teacher talk was significantly greater in conventional rooms while pupil talk was significantly more common in the open-plan rooms.

Several of the teachers visited for our studies were deeply concerned that the open-plan schools allow for overcrowding. In the traditional building, a class size exceeding 41 automatically meant overcrowding. In the newer open-plan buildings, areas designed as shared resource areas, soon become 'classrooms', leaving all teachers without the intended resource area and not incidentally making one class the thoroughfare through which others must pass at frequent intervals during the day:

> ...there seem to be some grounds for thinking that Open Plan schools tend to be cramped (Bennett, Andreae, Hegarty, and Wade, 1976, p. 25).

SECTION III. A FINAL NOTE

In short, the use of groupings and the provision of a framework for pupil choice do appear to successfully discriminate among teachers of varying styles. They are concrete variables that make intuitive sense in both research and practical contexts. They also lend themselves to manipulation.

The teacher who would like to move in a more informal direction can begin gradually by having individual pupils or a small group work separately from the central group. Pupil choice of working location and partners is also an easy beginning. As the teacher and pupils adjust, more activities can occur simultaneously and more pupil choice can be offered so that individuals are working at the appropriate level in a context interesting to them. These same options can work in the other direction as well: when the teacher perceives more chaos than coherence it would be wise to limit pupil options, preferably for the specific pupils involved, but possibly for the entire class. The varied simultaneous activities can also be cut back as far as the teacher considers necessary. It is the class teacher who must determine both the nature and the extent of the activities and options to be provided.

For the researcher, the groupings begin to look within the classroom at the aspects that distinguish among teachers. In this study, we have portrayed the patterns of groupings that do occur in classes containing 8-year-old pupils and have aligned these patterns with styles of teaching. The challenge in further work will be to look within the groupings at the quality of experience and the nature of learning for the individual child.

APPENDIX I.

INSTRUMENTS: STUDY ONE

A. The Pilot Instrument (A Written Repertory Grid) 239

B. Advantages and Disadvantages of the Groupings (Teacher Questionnaire) 240

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E. Individual Pupil Schedule 252

School ______________________ Teacher ____________________ (Mr., Miss, Mrs.) Date __________

Instructions:
1) Please find the circles on the relevant rows.
2) Check the groups to which they refer.
3) Find a way in which two are alike and at the same time different from the third.
4) Fill in the Way Alike column and the Way Different column.
5) Put a + sign in the box of each group which is described by the Way Alike construct.
6) Put a - sign in the box for each group which is described by the Way Different construct. Leave the box empty if neither or both of the constructs seems applicable to the group.
7) Next row, back to step 1) please. Try to specify constructs which you have not used before.

To help you begin, the first construct has been supplied. Please begin row 1 with step 5).

	With Teacher Participation					Without Teacher Participation				
	Individual	Small Group (2-6 Pupils)	Medium Group (7-12 Pupils)	Large Group (13-Class)	Combined Classes	Individual	Small Group (2-6 Pupils)	Medium Group (7-12 Pupils)	Large Group (13-Class)	Combined Classes
1.										
2.			○			○			○	
3.				○	○			○		
4.	○		○				○			
5.		○			○	○				
6.	○			○				○		
7.					○		○		○	
8.			○		○					○
9.		○	○	○						
10.						○	○		○	
11.	○	○		○						
12.		○	○				○			

CONSTRUCTS	
Way Alike	Way Different
a situation I use frequently	a situation I use rarely

ADVANTAGES ANL DISADVANTAGES OF THE GROUPINGS
(TEACHER QUESTIONNAIRE)

Teacher ____________________ School ____________________ Date ____________

Will you please note the advantages and disadvantages of each of the following learning situations. Please remember that for our purposes "without active teacher participation" refers to the times when the pupil is carrying on with his activity on his own, though you will probably be in the same room and may have assigned the task.

Groupings	Advantages	Disadvantages	Other Comments
With teacher participation/ Individual			
With teacher participation/ Small Group (2-6 Pupils)			
With teacher participation/ Medium Group (7-12 Pupils)			
With teacher participation/ Large Group (13-Whole Class)			
With teacher participation/ Combined Classes			
Without active teacher participation/ Individual			
Without active teacher participation/ Small Group (2-6 Pupils)			
Without active teacher participation/ Medium Group (7-12 Pupils)			
Without active teacher participation/ Large Group (13-Whole Class)			
Without active teacher participation/ Combined Classes			

TEACHING STYLES QUESTIONNAIRE

UNIVERSITY OF LANCASTER

DEPARTMENT OF EDUCATIONAL RESEARCH

SSRC PRIMARY SCHOOL PROJECT

The way in which teachers arrange their classrooms, and methods of teaching adopted, naturally reflect factors such as the conditions under which the school operates, and the characteristics of the pupils. At present all too little is known about the way in which teachers adapt their methods to circumstances, and hence little advice can be passed on to students training to be teachers. In an attempt to obtain information which may be useful in this and other ways, this questionnaire has been devised. It is in three parts, reflecting the attempt to relate circumstances to teaching methods. Thus, part one asks for background information about the teacher, class and school; part two is designed to cover various aspects of classroom and curriculum organisation, and part three asks for teachers' opinions on various educational topics. Additional space is provided at the end of the questionnaire should you wish to elaborate on any of your answers.

For our work to be of any value, we must obtain responses from a wide cross-section of teachers. I hope you will feel that this project is sufficiently worthwhile to merit your support. It generally takes about half an hour to complete the questionnaire, and of course, replies are confidential. It is important in part two that you try to record as objectively as you can what actually happens in your classroom, since student teachers often appear to receive misleading impressions in their training, which later experiences contradict.

Most of the items in this questionnaire ask you to choose one answer from a number of alternatives, by circling the appropriate CODE NUMBER. We realise that this procedure may occasionally involve oversimplification. Other items require a more specific response and you are asked to enter the appropriate figure in the box provided. It is important to answer all questions.

PART 1 TEACHER, CLASS AND CLASSROOM.

For Computer Use

PERSONAL DETAILS

☐ 1 - 5

1. Name ....

Name and address of school ....

....

			Code Number	For Computer Use
2.	Sex.	Male	0	6
		Female	1	
3.	Age.	Under 30 yrs.	0	7
		30 - 39 yrs.	1	
		40 - 49 yrs.	2	
		50 - 59 yrs.	3	
		Over 60 yrs.	4	
4.	Training.			
	(i) Higher education spent mainly at	University	0	8
		College	1	
	(ii) Qualification	Graduate	0	9
		Non-graduate	1	
	(iii) Formal teacher training	None	0	10
		Primary oriented	1	
		Secondary oriented	2	

			Code Number	For Computer Use
5.	Teaching experience (in years)	Total		11-12
		In primary schools		13-14
		In secondary schools		15-16

CLASS AND CLASSROOM

			Code Number	For Computer Use
6.	Number of pupils in class.	Boys		17-18
		Girls		19-20
		Total		21-22
7.	Year group you are teaching.	3rd year Juniors	0	23
		4th year Juniors	1	
		2nd/3rd year mixed	2	
		3rd/4th year mixed	3	
8.	If the pupils are streamed by ability, which stream do you teach?	No streaming	0	24
		Stream A	1	
		Stream B	2	
		Stream C	3	
		Remedial	4	
9.	Approximate area of classroom (in square yards).			25-27
10.	What type of desk is used in the class?	Single with seat attached . .	0	28
		Single with separate seat . .	1	
		Double with seat attached . .	2	
		Double with separate seat . .	3	
		Table style seating 3 or more	4	
		Other (please specify).	5	
11.	Is there a small library or store of books in the classroom?	No	0	29
		Yes	1	
12.	Are there storage facilities in the classroom?	No	0	30
		Yes	1	
13.	Is the heating adequate in the classroom?	No	0	31
		Yes	1	
14.	Is the lighting adequate in the classroom?	No	0	32
		Yes	1	

		Code Number	For Computer Use
15. What is the level of ability of your pupils?			
	Mostly bright	0	33
	Bright/average	1	
	Average	2	
	Average/dull	3	
	Mostly dull	4	
	Full ability range	5	

PART 2. TEACHING METHODS ADOPTED

			Card II
SEATING ARRANGEMENTS		☐	1 - 5
1. Do your pupils decide for themselves where they sit in the classroom?			
	No	0	6
	Yes	1	
2. Are the seats usually arranged so that pupils sit			
	separately or in pairs? . .	0	7
	in groups of 3 or more? . .	1	
3. Are pupils allocated to places or groups on the basis of their ability?			
	No	0	8
	Yes	1	
4. Do pupils stay in the same seats or groups for most of the day?			
	No	0	9
	Yes	1	

CLASSROOM ORGANISATION			
5. Do you usually allow your pupils to move around the classroom			
	generally whenever they wish?	0	10
	only during certain kinds of curricular activity? . . .	1	
6. Do you usually allow your pupils to talk to one another			
	usually whenever they wish? .	0	11
	only during certain kinds of curricular activity? . . .	1	
7. Do you expect your pupils to ask you permission before leaving the room?			
	No	0	12
	Yes	1	
8. Do you expect your pupils to be quiet most of the time?			
	No	0	13
	Yes	1	
9. Do you appoint monitors with responsibility for certain jobs?			
	No	0	14
	Yes	1	

ORGANISING THE CURRICULUM

		Code Number	For Computer Use
10.	Do you regularly take pupils out of school as part of your normal teaching activities?		
	No	0	15
	Yes	1	
11.	Do you use a timetable for organising the week's work?		
	No	0	16
	Yes	1	
12.	For basic subjects do you more often use		
	text books?	0	17
	specially prepared materials?	1	
13.	Do you require that your pupils know their multiplication tables off by heart?		
	No	0	18
	Yes	1	
14.	Teaching sometimes requires reference materials. Do you normally		
	supply most of this material for your pupils?	0	19
	ask the pupils to find their own?	1	
15.	Do you regularly give your pupils homework?		
	No	0	20
	Yes	1	
16.	In organising the work of your class, roughly what emphasis do you give to each of these five different approaches? Indicate approximately what percentage of time is spent on each approach. Your total should come to 100%, although this is not intended to imply that all the work necessarily fits into these five categories.	Percent	
	1. Teacher talking to the class as a whole.		21
	2. Pupils working together co-operatively in groups, on work given by the teacher.		22
	3. Pupils working together co-operatively in groups, on work of their own choice.		23
	4. Pupils working individually, at their own pace, on work given by the teacher.		24
	5. Pupils working individually at their own pace, on work of their own choice.		25
	TOTAL	100%	26-28
17.	On which aspect of number work do you place more emphasis?		
	(i) Developing computational skills through graded exercises?	0	29
	(ii) Exploring concepts with materials or apparatus?	1	
18.	Do you encourage fluency and originality in written English, even if for many children this may be at the expense of grammatical accuracy?		
	No	0	30
	Yes	1	

TESTING AND MARKING

		Code Number	For Compu Use
19. Do you put an actual mark or grade on pupils' work?			
	No	0	
	Yes	1	31
20. Do you correct most spelling and grammatical errors?			
	No	0	32
	Yes	1	
21. Are stars, or their equivalent given to pupils who produce the best work?			
	No	0	33
	Yes	1	
22. Do you give your pupils an arithmetic (mental or written) test at least once a week?			
	No	0	34
	Yes	1	
23. Do you give your pupils a spelling test at least once a week?			
	No	0	35
	Yes	1	
24. Do you have 'end of term' tests?	No	0	36
	Yes	1	

DISCIPLINE

25. Do you have many pupils who create discipline problems?			
	No	0	37
	Yes	1	
26. Do you find verbal reproof and/or reasoning normally sufficient?			
	No	0	38
	Yes	1	
27. For persistent disruptive behaviour, where verbal reproof fails to gain the pupils' co-operation, do you use any of the following disciplinary measures?			
(i) extra work	No	0	39
	Yes	1	
(ii) smack	No	0	40
	Yes	1	
(iii) withdrawal of privileges	No	0	41
	Yes	1	
(iv) send to head teacher	No	0	42
	Yes	1	
(v) sent out of room	No	0	4
	Yes	1	

Code Number | For Computer Use

ALLOCATION OF TEACHING TIME

28. When time has been deducted for registration and assembly, the number of hours per week left for teachers is 25. Estimate as accurately as possible how this is distributed among subjects and activities in the table below, by putting the appropriate number of hours in the boxes provided. Please use last week as your reference unless this was in some way unusual. (for example, Open day)

	Number of Hours	Code Number	For Computer Use
Number work			
English (including creative writing)			
Reading			44
History			
Geography			
French			
Science (including nature study)			
Scripture			
P.E.			
Music			
Art and Craft			45
Music and Movement			
Drama			
Environmental Studies			
Social Studies			
Project work			
Free choice activity			
Integrated studies			46
TOTAL	25 (approx.)		

PART 3. OPINIONS ABOUT EDUCATION

Card III

1 - 5

In this section we ask you to give your opinions about a number of educational topics. We are anxious to record the frank opinions of professional teachers and there is no suggestion that there are right or wrong answers. It is important to answer every question. If you would like to elaborate on any item please make use of the space provided at the end of the questionnaire.

TEACHING AIMS

The following are probably all worthwhile teaching aims, but their relative importance may be influenced by the situation in which the teacher works. Please rate each aim on the five-point scale to indicate its importance in relation to your class, by circling the appropriate code number.

		Code Number					For Computer Use
		Not important	Fairly important	Important	Very important	Essential	
A.	Preparation for academic work in secondary school. .	1	2	3	4	5	6
B.	An understanding of the world in which pupils live.	1	2	3	4	5	7
C.	The acquisition of basic skills in reading and number work.	1	2	3	4	5	8
D.	The development of pupils' creative abilities. . . .	1	2	3	4	5	9
E.	The encouragement of self-expression.	1	2	3	4	5	10
F.	Helping pupils to co-operate with each other. . . .	1	2	3	4	5	11
G.	The acceptance of normal standards of behaviour. . .	1	2	3	4	5	12
H.	The enjoyment of school.	1	2	3	4	5	13
I.	The promotion of a high level of academic attainment.	1	2	3	4	5	14

OPINIONS ABOUT EDUCATION ISSUES

Please indicate the strength of your agreement or disagreement with the following statements by circling the appropriate code.

		Strongly disagree	Disagree	No opinion	Strongly agree	Agree	
A.	Most pupils in upper junior school have sufficient maturity to choose a topic to study, and carry it through.	1	2	3	4	5	15
B.	Most pupils in upper junior school feel more secure if told what to do and how to do it.	1	2	3	4	5	16
C.	'Creativity' is an educational fad, which could soon die out.	1	2	3	4	5	17
D.	Firm discipline by the teacher leads to good self-discipline on the part of the pupils.	1	2	3	4	5	18
E.	Streaming by ability is undesirable in junior school.	1	2	3	4	5	19
F.	The teacher should be well liked by the class. . . .	1	2	3	4	5	20
G.	Children working in groups waste a lot of time arguing and 'messing about'.	1	2	3	4	5	21
H.	Pupils work better when motivated by marks or stars.	1	2	3	4	5	22
I.	Too little emphasis is placed on keeping order in the classroom nowadays.	1	2	3	4	5	23
J.	Teachers need to know the home background and personal circumstances of their pupils.	1	2	3	4	5	24

OPINIONS ABOUT TEACHING METHODS

To what extent would you agree or disagree with the following statements when they are applied to (a) FORMAL teaching methods, and (b) INFORMAL teaching methods?

	a) FORMAL METHODS					b) INFORMAL METHODS					For Computer Use
	Strongly disagree	Disagree	No opinion	Agree	Strongly agree	Strongly disagree	Disagree	No opinion	Agree	Strongly agree	
(i) Could create discipline problems.	1	2	3	4	5	1	2	3	4	5	25-26
(ii) Fail to bring the best out of bright pupils.	1	2	3	4	5	1	2	3	4	5	27-28
(iii) Make heavy demands on the teacher.	1	2	3	4	5	1	2	3	4	5	29-30
(iv) Encourage responsibility and self-discipline.	1	2	3	4	5	1	2	3	4	5	31-32
(v) Teach basic skills and concepts effectively.	1	2	3	4	5	1	2	3	4	5	33-34
(vi) Encourage time wasting or day-dreaming.	1	2	3	4	5	1	2	3	4	5	35-36
(vii) Leave many pupils unsure of what to do.	1	2	3	4	5	1	2	3	4	5	37-38
(viii) Provide the right balance between teaching and individual work.	1	2	3	4	5	1	2	3	4	5	39-40
(ix) Allow each child to develop his full potential.	1	2	3	4	5	1	2	3	4	5	41-42
(x) Teach pupils to think for themselves.	1	2	3	4	5	1	2	3	4	5	43-44

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

If you would like to make additional comments, or elaborate on answers to our questions, or to suggest aspects of the classroom we have overlooked, please make use of the space below. We should be grateful for your comments.

GENERAL PATTERN OF CLASSROOM ACTIVITIES OBSERVATION SCHEDULE

Instructions for Use

As the name suggests, the schedule is designed to provide an overall picture of the activities within the class. Recording includes the groupings used, the content area, and the duration and sequence of activities.

In the first grid the activities with the teacher are recorded while in the second grid activities without active teacher participation are recorded. The columns in each grid indicate the size of the group: Individual, Small (2-6 Pupils), Medium (7-12 Pupils), Large (13-Whole Class), and Combined Classes. Content areas are recorded within the grids using the following symbols:

W=Writing
R=Reading
N=Numbers
Sci=Science
S.S.=Social Studies
P.E.=Physical Education
R.E.=Religious Education
M=Music
A=Art
D=Drama
F=Foreign Language (French)

The specific activity for subjects such as Social Studies would be recorded inside parentheses (i.e., "S.S.(R)" is the notation used when the child is reading Social Studies material).

During the exploratory study we also specified the exact number of pupils in the group.

Immediately beside the grids, the time at the beginning of the 5-minute observation period is recorded.

As one example, consider a 5-minute observation period during which the teacher is giving a phonics lesson to 5 pupils while 11 are working individually on their Social Studies projects (5 reading from reference books and 6 writing in their booklets); 9 pupils are working individually on number cards; 3 children are selecting the hymn and prayer for Assembly; and 2 have been withdrawn from the classroom for remedial reading instruction. In the section labelled "With Teacher" under the column labelled "Small (2-6)", the observer would write '5R' to designate the phonics lesson and '2R(2T)' to represent the remedial withdrawal with the extra teacher. In the section labelled "Without Teacher" under the column labelled "Individual", the observer would write '9N', '5S.S.(R)', and '6S.S.(W)'. In this same "Without Teacher" section but under the "Small (2-6)" column, the observer would write '3R.E.'. Any additional information such as curriculum material or frequency of remedial withdrawal would be written under 'Comments'.[1]

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[1] Should two children leave the area for the library, say, they are included in the "Without Teacher/Small (2-6)" tally until they return to the teacher's area and obviously change grouping. In other words, the groupings of pupils who leave the teacher's field of vision are counted from her perspective rather than from any subsequent regroupings that may occur without the teacher's knowledge. Should the teacher consent to a regrouping with children outside her register group, a comment to that effect would be entered in that row of the observation schedule under 'Comments', but the tally would still refer only to the pupils on her register.

GENERAL PATTERN OF CLASSROOM ACTIVITIES (OBSERVATION SCHEDULE)

School ______________

Teacher ______________

Date ______________

No. on Roll ______________

No. Present Today _____

With Teacher:					Without Teacher:						
Individual	Small (2-6)	Medium (7-12)	Large (13-Class)	Combined Classes	Individual	Small (2-6)	Medium (7-12)	Large (13-Class)	Combined Classes	Time:	Comments:

INDIVIDUAL PUPIL SCHEDULE

School ______________________ Teacher ______________________

Pupil ______________________ (Boy/Girl) Date ______________________

Please tick each type of group the child participated in during each quarter of the day. There will be more than one tick if the child has worked at different subjects or in different types of groups. For your own convenience, it may be easier to complete the form during breaks immediately following each part of the day. Our interest is in the types of activities in which children are involved during the day. It is not in the specific child. So if the child is behaving atypically during the day of observation this is not cause for concern. Please feel free to add any comments that you wish.

A.M. Commencement to A.M. Break:

	Writing	Reading	Numbers	Science	Social Studies	Physical Education	Religious Education	Music	Art	Drama	Foreign Languages
With Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											
Without Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											

End of A.M. Break to Dinnertime:

With Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											
Without Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											

INDIVIDUAL PUPIL SCHEDULE

School ______________________ Teacher ______________________

Pupil ______________________ (Boy/Girl) Date ______________________

P.M. Commencement to P.M. Break:

	Writing	Reading	Numbers	Science	Social Studies	Physical Education	Religious Education	Music	Art	Drama	Foreign Languages
With Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											
Without Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											

End of P.M. Break to Hometime:

With Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											
Without Teacher											
Individual											
Small group (2-6 pupils)											
Medium " (7-12 ")											
Large " (13-Class)											
Combined Classes											

Comments:

APPENDIX II.

INSTRUMENTS: STUDY TWO[1]

A. Walberg and Thomas Teacher Questionnaire 255

B. Walberg and Thomas Observation-Rating Scale 257

C. Grouping, Framework, and Movement Observation Schedule
Instructions for Use 259
Observation Schedule 262

D. Language Observation Schedule
Instructions for Use 263
Observation Schedule 266

E. Pupil Interview Schedule
Instructions for Use 267
Pupil's Perception of School (Interview) 268

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[1] The Teaching Styles Questionnaire was also used in Study Two. A copy of the instrument is included in Appendix I, pp. 241-248.

WALBERG AND THOMAS TEACHER QUESTIONNAIRE

Teacher ______________________ School ________________ Date __________

Instructions: For each of the following statements, please circle the number which most closely expresses your estimate of the extent to which the statement is true of your own classroom. If the statement is absolutely not the case, circle "1"; if it is very minimally true, choose "2." If the statement generally describes your classroom, choose "3"; if it is absolutely true choose "4."

	Strongly disagree	Disagree	Agree	Strongly agree
1. Texts and materials are supplied in class sets so that all children may have their own.	1	2	3	4
2. Each child has a space for his personal storage and the major part of the classroom is organized for common use.	1	2	3	4
3. Materials are kept out of the way until they are distributed or used under my direction.	1	2	3	4
4. Many different activities go on simultaneously.	1	2	3	4
5. Children are expected to do their own work without getting help from other children.	1	2	3	4
6. Manipulative materials are supplied in great diversity and range, with little replication.	1	2	3	4
7. The day is divided into large blocks of time within which children, with my help, determine their own routine.	1	2	3	4
8. Children work individually and in small groups at various activities.	1	2	3	4
9. Books are supplied in diversity and profusion (including reference books, children's literature).	1	2	3	4
10. Children are not supposed to move about the room without asking permission.	1	2	3	4
11. Desks are arranged so that every child can see the blackboard or teacher from his desk.	1	2	3	4
12. The environment includes materials I have developed.	1	2	3	4
13. Common environmental materials are provided.	1	2	3	4
14. Children may voluntarily use other areas of the building and schoolyard as part of their school time.	1	2	3	4
15. Our program includes use of the neighborhood.	1	2	3	4
16. Children use "books" written by their classmates as part of their reading and reference materials.	1	2	3	4
17. I prefer that children not talk when they are supposed to be working.	1	2	3	4
18. Children voluntarily group and regroup themselves.	1	2	3	4
19. The environment includes materials developed or supplied by the children.	1	2	3	4
20. I plan and schedule the children's activities through the day.	1	2	3	4
21. I make sure children use materials only as instructed.	1	2	3	4
22. I group children for lessons directed at specific needs.	1	2	3	4
23. Children work directly with manipulative materials.	1	2	3	4

Teacher ____________________

	Strong disagr	Disagr	Agree	Strong agree
24. Materials are readily accessible to children.	1	2	3	4
25. I promote a purposeful atmosphere by expecting and enabling children to use time productively and to value their work and learning.	1	2	3	4
26. I use test results to group children in reading and/or math.	1	2	3	4
27. Children expect me to correct all their work.	1	2	3	4
28. I base my instruction on each individual child and his interaction with materials and equipment.	1	2	3	4
29. I give children tests to find out what they know.	1	2	3	4
30. The emotional climate is warm and accepting.	1	2	3	4
31. The work children do is divided into subject matter areas.	1	2	3	4
32. My lessons and assignments are given to the class as a whole.	1	2	3	4
33. To obtain diagnostic information, I observe the specific work or concern of a child closely and ask immediate, experience-based questions.	1	2	3	4
34. I base my instruction on curriculum guides or the text books for the grade level I teach.	1	2	3	4
35. I keep notes and write individual histories of each child's intellectual, emotional, and physical development.	1	2	3	4
36. I have children for just one year.	1	2	3	4
37. The class operates within clear guidelines, made explicit.	1	2	3	4
38. I take care of dealing with conflicts and disruptive behavior without involving the group.	1	2	3	4
39. Children's activities, products and ideas are reflected abundantly about the classroom.	1	2	3	4
40. I am in charge.	1	2	3	4
41. Before suggesting any extension or redirection of activity, I give diagnostic attention to the particular child and his particular activity.	1	2	3	4
42. The children spontaneously look at and discuss each other's work.	1	2	3	4
43. I use tests to evaluate children and rate them in comparison to their peers.	1	2	3	4
44. I use the assistance of someone in a supportive advisory capacity.	1	2	3	4
45. I try to keep all children within my sight so that I can be sure they are doing what they are supposed to do.	1	2	3	4
46. I have helpful colleagues with whom I discuss teaching ideas.	1	2	3	4
47. I keep a collection of each child's work for use in evaluating his development.	1	2	3	4
48. Evaluation provides information to guide my instruction and provisioning for the classroom.	1	2	3	4
49. Academic achievement is my top priority for the children.	1	2	3	4
50. Children are deeply involved in what they are doing through the day.	1	2	3	4

OBSERVATION-RATING SCALE

Teacher ____________________

School ____________________

	No evidenc	Weak infrequent	Moderate occasional	Strong frequent evidence
1. Texts and materials are supplied in class sets so that all children may have their own.	1	2	3	4
2. Each child has a space for his personal storage and the major part of the classroom is organized for common use.	1	2	3	4
3. Materials are kept out of the way until they are distributed or used under the teacher's direction.	1	2	3	4
4. Many different activities go on simultaneously.	1	2	3	4
5. Children are expected to do their own work without getting help from other children.	1	2	3	4
6. Manipulative materials are supplied in great diversity and range, with little replication.	1	2	3	4
7. Day is divided into large blocks of time within which children, with the teacher's help, determine their own routine.	1	2	3	4
8. Children work individually and in small groups at various activities.	1	2	3	4
9. Books are supplied in diversity and profusion (including reference, children's literature).	1	2	3	4
10. Children are not supposed to move about the room without asking permission.	1	2	3	4
11. Desks are arranged so that every child can see the blackboard or teacher from his desk.	1	2	3	4
12. The environment includes materials developed by the teacher.	1	2	3	4
13. Common environmental materials are provided.	1	2	3	4
14. Children may voluntarily make use of other areas of the building and schoolyard as part of their school time.	1	2	3	4
* 15. The program includes use of the neighborhood.	1	2	3	4
16. Children use "books" written by their classmates as part of their reading and reference materials.	1	2	3	4
17. Teacher prefers that children not talk when they are supposed to be working.	1	2	3	4
18. Children voluntarily group and regroup themselves.	1	2	3	4
19. The environment includes materials developed or supplied by the children.	1	2	3	4
20. Teacher plans and schedules the children's activities through the day.	1	2	3	4
21. Teacher makes sure children use materials only as instructed.	1	2	3	4
22. Teacher groups children for lessons directed at specific needs.	1	2	3	4
23. Children work directly with manipulative materials.	1	2	3	4
24. Materials are readily accessible to children.	1	2	3	4
25. Teacher promotes a purposeful atmosphere by expecting and enabling children to use time productively and to value their work and learning.	1	2	3	4

WALBERG AND THOMAS OBSERVATION-RATING SCALE

Teacher ______________________

School ______________________

	No evidence	Weak infrequent	Moderate occasional	Strong frequent evidence
* 26. Teacher uses test results to group children for reading and/or math.	1	2	3	4
* 27. Children expect the teacher to correct all their work.	1	2	3	4
28. Teacher bases her instruction on each individual child and his interaction with materials and equipment.	1	2	3	4
* 29. Teacher gives children tests to find out what they know.	1	2	3	4
30. The emotional climate is warm and accepting.	1	2	3	4
31. The work children do is divided into subject matter areas.	1	2	3	4
32. The teacher's lessons and assignments are given to the class as a whole.	1	2	3	4
33. To obtain diagnostic information, the teacher closely observes the specific work or concern of a child and asks immediate, experience-based questions.	1	2	3	4
34. Teacher bases her instruction on curriculum guides or text books for the grade level she teaches.	1	2	3	4
* 35. Teacher keeps notes and writes individual histories of each child's intellectual, emotional, and physical development.	1	2	3	4
* 36. Teacher has children for a period of just one year.	1	2	3	4
37. The class operates within clear guidelines, made explicit.	1	2	3	4
* 38. Teacher takes care of dealing with conflicts and disruptive behavior without involving the group.	1	2	3	4
39. Children's activities, products, and ideas are reflected abundantly about the classroom.	1	2	3	4
40. The teacher is in charge.	1	2	3	4
41. Before suggesting any extension or redirection of activity, teacher gives diagnostic attention to the particular child and his particular activity.	1	2	3	4
42. The children spontaneously look at and discuss each other's work.	1	2	3	4
* 43. Teacher uses tests to evaluate children and rate them in comparison to their peers.	1	2	3	4
* 44. Teacher uses the assistance of someone in a supportive, advisory capacity.	1	2	3	4
45. Teacher tries to keep all children within her sight so that she can make sure they are doing what they are supposed to do.	1	2	3	4
* 46. Teacher has helpful colleagues with whom she discusses teaching.	1	2	3	4
* 47. Teacher keeps a collection of each child's work for use in evaluating his development.	1	2	3	4
* 48. Teacher views evaluation as information to guide her instruction and provisioning for the classroom.	1	2	3	4
* 49. Academic achievement is the teacher's top priority for the children.	1	2	3	4
50. Children are deeply involved in what they are doing.	1	2	3	4

*Items probably requiring teacher interview.

GROUPING, FRAMEWORK, AND MOVEMENT OBSERVATION SCHEDULE

Instructions for Use

At the top identifying information is given: Teacher, School, Date.

Grouping

The left-hand side of the form is a grid with columns representing four groupings with the teacher (individual, small group, large group, and combined classes) and two groupings without the teacher (individual and small group). The rows represent the first two minutes of each five minute observation period. Operational definitions of these six groupings are:

With Teacher/Individual includes any context in which the pupil receives individual consideration (either cognitive or affective in content) when he is not obviously a member of another functioning group. (When the teacher directs a question to one pupil during a class discussion, this will be Large Group since the context for the comments is the class. Equally, when the teacher focusses attention on one pupil during a small group lesson, this would be considered Small Group--again remembering the context.)

With Teacher/Small Group refers to a group composed of 2 to 6 pupils working with the teacher. Small groups will be further characterized as Organizational (O) or Pupil Planning and Problem-solving (P). An organizational group is largely instructional in orientation with the teacher structuring the situation and generally assigning a task which all pupils at one table or in that one group will complete individually with no major pupil consultation. It is likely that there will be question-answer sequences with the teacher during the instructional period and that there will be some pupil-pupil interaction during the subsequent individual pupil work on the teacher-set task. This teacher-dominated instructional setting is markedly different from the small groups characterized by pupil planning and problem-solving where the teacher's role changes from instruction to guidance and where the pupils affect their own activity in any of several ways (i.e., pace, topic, materials).

With Teacher/Large Group designates groups composed of from 13 pupils to the entire class. This situation includes for example, class discussion, question-answer sequences, and teacher instructions for pupil tasks. Once the pupils are working individually on an assignment given to the large group, the categorization changes to Without Teacher/Individual. With Teacher/Large Group includes sessions when classes are rearranged (team teaching), but one teacher still has the equivalent of only one register group. The 'comment' section would include a reference to the regrouping.

With Teacher/Combined Classes refers to groups larger than one register group. If more than one teacher is working with the pupils, designate by 2T, 3T, and so on.

Without Teacher/Individual is used to stand for the pupil working on his own.

Without Teacher/Small Group designates groups composed of 2 to 6 pupils working without active teacher participation. Again, 'O' is used to indicate organizational groupings in which the teacher has set all dimensions of the task. There may still be pupil-pupil interaction: its function might be to clarify the task, to help a classmate with a specific difficulty, or to socialize. 'P' is used to indicate groupings in which the pupils have planned and are executing, or are planning, some phases of the activity.

Framework

Moving toward the right, a second grid is used to tick the occurrence of a teacher framework which provides the pupils with opportunities for choice in Timing, Partners, Location, Content, Activity, or Materials. Timing refers to the sequence, pace, and/or duration of the activity. Partners notes his selection of working companions; location refers to the pupil selecting where he will actually work. Content indicates that the pupil decides in which discipline he will work; he may, for instance, decide to begin with math rather than reading. Activity designates pupil selection within the discipline specified by the teacher; for example, he may be allowed to decide whether to read or write about his topic or whether to paint a picture or build a model. Materials is used to represent the child's selection of media. It is likely that some of these categories will occur together. Totally free choice is indicated by a tick in each column.

After the grouping and framework grids comes a column to record the time at the beginning of the 5-minute observation period and a space to write comments to clarify or augment the data. Content areas are indicated in the 'comment' space at the beginning of each activity or set of activities.

Movement

At the bottom of the form is a movement rating scale designed for completion immediately following the observation periods. This allows for the categorization of pupil and teacher movement along a 4-point scale from 'no occurrence' through 'infrequent' and 'moderate' occurrence to 'frequent' occurrence. 'Infrequent' is arbitrarily set as 2 or fewer occurrences; 'moderate' as 3 or more occurrences; and 'frequent' as indicative of a general, accepted classroom pattern.

There are five types of pupil movement. The first is movement to the teacher for any purpose from any location. The other four are for the purpose of interaction with classmates and/or for provisioning. This movement may be limited to within the pupil's quadrant in his class, to within the base area/classroom, or may extend to elsewhere in the building, or out of the building. These five types of movement may occur under three conditions: under teacher direction, with teacher permission, or at the pupil's discretion. Thus, there are 15 items rating pupil movement.

Five items rate teacher movement. The teacher may 1) remain at her desk, 2) remain in the front of the room, 3) move to specific pupils, 4) circulate from table-to-table or group-to-group, or 5) move to supervise activities outside the room.

GROUPING, FRAMEWORK, AND MOVEMENT OBSERVATION SCHEDULE

Teacher ______________ School ______________ Date ___________

With Teacher				W/o T.		Framework						Time	Comments
I	SG	LG	CC	I	SG	T	P	L	C	A	M		

Pupil Movement	No occurrence	Infrequent	Moderate	Frequent
Teacher Direction:				
to teacher	1	2	3	4
within quadrant	1	2	3	4
within room	1	2	3	4
within building	1	2	3	4
out of building	1	2	3	4
Teacher Permission:				
to teacher	1	2	3	4
within quadrant	1	2	3	4
within room	1	2	3	4
within building	1	2	3	4
out of building	1	2	3	4
Pupil Discretion:				
to teacher	1	2	3	4
within quadrant	1	2	3	4
within room	1	2	3	4
within building	1	2	3	4
out of building	1	2	3	4

Teacher Movement	No occurrence	Infrequent	Moderate	Frequent
own desk	1	2	3	4
front of room	1	2	3	4
to individual pupils	1	2	3	4
circulates tables/groups	1	2	3	4
supervision outside room	1	2	3	4

LANGUAGE OBSERVATION SCHEDULE

Instructions for Use

Identifying information including school, teacher, date, pupil name, and space to record some identifying characteristic of the child to be observed are completed at the top of the form. The designation 'boy/girl; 1/2' is also given to facilitate rotated observation. The middle of the form is comprised of two identical grids each with three columns representing: 1) Initiation of verbal interaction, 2) Continuation, and 3) Comments. Grouping and subject area are indicated in the margin. The comment section is reserved for as much of the verbatim interaction as it is possible to gather, primarily to illustrate the flavour of the exchange. The progression down the rows of the grid indicates the sequence of interaction. At the conclusion of each verbal sequence a short horizontal line extending into the margin is drawn, though generally it is easy to determine the length of the exchange by noting the next initiation. To indicate the end of the three minute observation period, a double line is drawn across the bottom of the row designating the last utterance.

Inside the grid, four types of information are recorded. First, the speaker is designated as either Teacher, Target Pupil, or Classmate. Second, verbal utterance is categorized as either Statement, Question, Evaluation, Social (referring to non-instructional comments), or Not clearly heard ('?'). Third, the utterance is further categorized as Objective or Subjective; since most classroom utterances are objective, this is assumed and not marked. The subjective utterances are marked. And fourth, the person or group toward whom the utterance is directed is noted as Teacher, target Pupil, individual Classmate, the entire

Small Group, or Large Group. If a sequence of utterances is identical in each of these respects (e.g., Teacher Statements to a Large Group), instead of repeating the notation in the next row, one dot is made in the box beside the first notation for each subsequent identically categorized utterance. Dots can be tallied at any later time, remembering to add the initial notation to the dot count; notation plus nine dots is equivalent to ten utterances. A word of caution: only one utterance initiates the interaction. In the example of Teacher Statements to a Large Group, if the teacher continues talking, the record switches from the Initiation to the Continuation column with dots used from that point on to indicate her continued speech. The initiation column should have no dots!

At the bottom of the form are scoring grids to facilitate data analysis. There are three grids under Initiation and three under Continuation; in each case one is for teacher data, one for target pupil data, and the third is for the other classmates. The columns of all six grids represent the categories Statement, Question, Evaluation, Social, and Not clearly heard. The rows for the teacher grids represent the objective utterances to the target pupil, to a small group including the target pupil, to his classmates, to a large group, and the summed total of objective utterances followed by identical rows for subjective utterances.

The rows for the target pupil grids represent objective utterances to the teacher, to a small group, to his classmates, to a large group, and the summed total of objective utterances followed by identical rows for subjective utterances. The rows for classmates are more numerous, representing objective utterances to the teacher, to the target pupil, to a small group including the target pupil, to other classmates, to a large group, and the summed total of objective utterances followed by identical rows for the subjective utterances.

Teacher ______________________ School __________________ Date __________
Pupil ____________________ (boy/girl; 1/2) ____________________

I	C	Comments	I	C	Comments

Initiation

Teacher:(Total__)

	S	Q	E	Soc	?
Obj:P					
SG					
C					
LG					
total					
Sub:P					
SG					
C					
LG					
total					

Target Pupil:(Total__)

	S	Q	E	Soc	?
Obj:T					
SG					
C					
LG					
total					
Sub:T					
SG					
C					
LG					
total					

Classmates:(Total__)

	S	Q	E	Soc	?
Obj:T					
P					
SG					
C					
LG					
total					
Sub:T					
P					
SG					
C					
LG					
total					

Continuation

Teacher:(Total__)

	S	Q	E	Soc	?
Obj:P					
SG					
C					
LG					
total					
Sub:P					
SG					
C					
LG					
total					

Target Pupil:(Total__)

	S	Q	E	Soc	?
Obj:T					
SG					
C					
LG					
total					
Sub:T					
SG					
C					
LG					
total					

Classmates:(Total__)

	S	Q	E	Soc	?
Obj:T					
P					
SG					
C					
LG					
total					
Sub:T					
P					
SG					
C					
LG					
total					

PUPIL INTERVIEW SCHEDULE

Instructions for Use

The pupil interview is facilitated by a tranquil atmosphere away from the distractions of the classroom and from the possible censorship of listening classmates or teacher. Walking from the class area to this haven, it is important to establish a comfortable rapport with the pupil showing interest in him and the school and assuring him that the investigator appreciates his cooperation, will return him shortly to his classroom, and that the investigator has been/will be talking with other pupils as well. This adjustment period continues until the child is at ease enough to begin responding to questions.

The interviewer explains his purpose and then progresses through the schedule, recording each child's responses as he makes them and clarifying them where necessary. Questions in the first part of the schedule follow the format "Is ____ more like work or more like play?" Comments given in parentheses on the recording form are either possible prompts or reminders that labels (e.g., 'social studies') are not standard across schools. This first section should be introduced with the following explanation:

> I've been visiting your class today, but I won't be able to see all the different sorts of activities you do and I won't have time to meet all the children. I'd appreciate it if you would answer some questions for me.
>
> In some of the other schools I've visited, some of the pupils have thought an activity was more like work, others have thought it was more like play, and some have said they didn't have that activity in their class. I would like to ask you about the same activities. Could you tell me then, if you do them in your class, whether you think they are more like work or more like play?
>
> Do you mind if I tape record what we're saying so I can listen back this evening if I miss something?

The second section (page two of the schedule) follows on directly from the first.

The interview is tape recorded to allow for checking at a later time.

PUPIL'S PERCEPTION OF SCHOOL (INTERVIEW)

Pupil ____________

Teacher ____________

School ____________

Work <-----> Play

___ 1 2 3 4 5 (1.) painting

___ 1 2 3 4 5 (2.) listening to (teacher) read a story

___ 1 2 3 4 5 (3.) maths

___ 1 2 3 4 5 (4.) writing a story

___ 1 2 3 4 5 (5.) caring for pets in school (feeding & cleaning)

___ 1 2 3 4 5 (6.) measuring

___ 1 2 3 4 5 (7.) reading to (teacher)

___ 1 2 3 4 5 (8.) money (plastic coins)

What do you do with money in your class? ____________

___ 1 2 3 4 5 (9.) writing in your topic/project booklet

___ 1 2 3 4 5 (10.) recording weather

___ 1 2 3 4 5 (11.) sewing (embroidery & knitting)

___ 1 2 3 4 5 (12.) reading with other children

When do you read with other children? ____________

___ 1 2 3 4 5 (13.) model making

___ 1 2 3 4 5 (14.) writing

___ 1 2 3 4 5 (15.) reading (social studies) silently to yourself

___ 1 2 3 4 5 (16.) English

What activities do you do in English? ____________

___ 1 2 3 4 5 (17.) doing sums

___ 1 2 3 4 5 (18.) reading a story silently to yourself

___ 1 2 3 4 5 (19.) (social studies)

___ 1 2 3 4 5 (20.) learning to tell time

___ 1 2 3 4 5 (21.) Are tests

Do you have tests? ____ Which subjects? ____________

___ 1 2 3 4 5 (22.) art

___ 1 2 3 4 5 (23.) growing plants in school

___ 1 2 3 4 5 (24.) reading

___ 1 2 3 4 5 (25.) handwriting

___ 1 2 3 4 5 (26.) science

__________ You said that ___ was 'work'. Why is it work? ____________

__________ ___ ____________

__________ ___ ____________

__________ You said that ___ was 'play'. Why is it play? ____________

__________ ___ ____________

__________ ___ ____________

Yes <--> No

Teacher ______________

School ______________

1 2 3 4 (1.) When you're doing numbers will everyone else be doing numbers and when you're doing art will everyone else be doing art?

1 2 3 4 (2.) When your classmate doesn't know how to do something, is it cheating if you help him/her?

1 2 3 4 (3.) Do you choose where you want to sit?

1 2 3 4 (4.) Must children in your class ask permission before they leave their seat to get something they need?

1 2 3 4 (5.) Does (teacher) ever ask if you like someone else's story?

1 2 3 4 (6.) May children in your class talk quietly with the people beside them?

1 2 3 4 (7.) Do some pupils dc harder work than others do? (Or do you all do the same?)

1 2 3 4 (8.) Do your classmates ever ask you if you like their work?

1 2 3 4 (9.) Does (teacher) tell you who you must work with?

1 2 3 4 (10.) May pupils ask questions? (to the teacher)

1 2 3 4 (11.) Do you ask questions?

1 2 3 4 (12.) Must children in your class ask permission before they leave the room to go to the toilets?

1 2 3 4 (13.) Do you ever work on your own?

1 2 3 4 (14.) Do you ever work with a partner?

1 2 3 4 (15.) Do you ever work with a few classmates?

1 2 3 4 (16.) Do you ever have lessons that the whole class does together?

Which ones? ______________________________

1 2 3 4 (17.) Do you ever work in a big group with children from other classes added to yours?

1 2 3 4 (18.) When (teacher) asks a question, does she/he always know the answer?

1 2 3 4 (19.) If you try, can you do the work at school?

1 2 3 4 (20.) Do you ever ask your classmates questions when you're working?

1 2 3 4 (21.) Do you ever choose what activity you want to do?

1 2 3 4 (22.) Does (teacher) ever ask if you like someone else's picture or model?

1 2 3 4 (23.) Does (teacher) tell you when to do a particular activity?

1 2 3 4 (24.) May you choose how long you'd like to stay working on an activity?

1 2 3 4 (25.) When (teacher) asks a question, is there only one right answer?

1 2 3 4 (26.) Do you have groups?

1 2 3 4 (27.) Is there a top group?

1 2 3 4 (28.) When you have groups, does (teacher) decide who's in the groups?

1 2 3 4 (29.) For doing well in school, is hard work or good luck most important?
hw gl

1 2 3 4 (30.) Pupils sometimes work on their own (1), or with a partner (2), or with a few classmates (3), or with the whole class (4) together, which do you do most of the time?

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